AMERICAN GAS ASSOCIATION

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1952

Gas Industry Is Spending Billions to Meet Demand
By Richard Fiske
WINSTON-SALEM, N. C. JOURNAL

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COLUMBUS, GA. LEDGER

Utility Plans Expansion During '52
BINGHAMTON, N. Y. PRESS

Gas Utility Industry Forges Ahead In 195
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LANSING, MICH. STATE JOURNAL

Demand For Gas Products Causes Industry Expansion
By RICHARD FISKE
DODGE CITY, KANS. GLOBE

Gas Utilities Post New Highs in '51
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Gas Industry Growing Fast
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GRAND RAPIDS, MICH. PRESS

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Gas Industry Forges Ahead
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By GEORGE F. MITCHELL, President, American Gas
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GTON, KY., Times-Star nday, January 1, 1952

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PAMPA, TEXAS NEWS

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UMBUS, GA. ENQUIRER

GAS DEMANDS GIVE INDUSTRY FIRM OUTLOOK
Mitchell Describes Favorable Factors
CHICAGO, ILL., TRIBUNE Monday, December 31, 1951

Gas Industry Striving To Meet Demand
1 1-2 Billion Was Expended For New Plants
By RICHARD FISKE
ASHEVILLE, N. C. CITIZEN

Page One News!

Headlines in the nation's press reported gas industry gains in 1951 last month. A. G. A. President George F. Mitchell's annual review, distributed by the Public Information Bureau, reached more than 50 million readers of 187 major newspapers. Other vital audiences received news of the industry's advances from radio commentators and business trade journals.

KATHRYN GRAYSON, star of the current MGM release, "Lovely to Look At," will share eye-catching honor with modern gas ranges during the A. G. A. 1952 Spring Style Show

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OURS is a frontier industry. Not in terms of raw excavations, lurking savages, log cabins or precarious living, but rather in the spirit of its leaders and the place it occupies in the economy of the nation.

The gas industry draws heavily on the qualities that have carried pioneers in restless quests for betterment: the spirit of adventure, the qualities of imagination and of curiosity and the refusal to lapse smugly into satisfaction with the status quo. In this drive to pierce the frontiers of today's living toward a better tomorrow, the members of the gas industry have developed an outstanding unity of purpose, as manifest in the PAR Program. From this have come technological and promotional developments impossible for the individual utility.

From the unifying force of cooperation, and from the surge to keep in the forefront of scientific, social and industrial progress, the gas industry has forged financial solidity and vigorous potentials for future growth. The leading article in this issue spotlights this development as told in a searching analysis by Past-A. G. A. President Hugh H. Cuthrell.

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The impact of nech

By HUGH H. CUTHRELL

President

The Brooklyn Union Gas Company

Significant technical advances directly related to the gas business, such as the development of long distance, large diameter natural gas pipelines, are having a tremendous effect on the gas industry. It is equally true, though less obvious, that technological changes outside of the industry vitally affect it. A dramatic example occurred early in this century when the electric light almost overnight wiped out gas illumination which had been the industry's primary business for almost 100 years.

The gas industry is one of the most interesting of the many great industries of our nation. It is one of the largest, with total assets of about 10 billion dollars and serving 25 million customers. It is one of our oldest industries, having operated continuously in this country since 1816—just one year after the Battle of Waterloo. The industry's most impressive characteristic is its historically proved ability to adjust itself to new conditions and participate fully in the dynamic growth of this country.

The gas industry, over its long life, has been dealt a number of staggering blows. It has parried each and moved on to greater heights. The gas industry for most of its long lifetime has been engaged in a fierce competitive battle with the other great fuel industries. As an industry, we have survived and developed because we provided a high quality fuel service which found acceptance in a free market. Out of our long experience in serving an exacting and ever-changing free society, we have developed in our industry a tough core of realism. We are aware that tomorrow will bring new problems; we are also aware it will bring new opportunities.

During the period between the start of the great depression and World War II, many were ready to write off the gas industry as a field for investment. Today, investors regard it with increasing interest and favor. Obviously the extension of natural gas through long distance pipelines to large new market areas has contributed largely to this changed attitude. Actually, this is but one factor in the improved earnings position of the gas industry. Certain significant developments in the gas industry have both a short-term and long-term bearing on the increasing attractiveness of gas company securities to the investor.

An address before The Eastern Regional Conference of The National Federation of Financial Analysts Societies, New York, November 8, 1951. Also published in the January issue of *Analysts Journal* of the New York Society of Security Analysts.

Growth of the industry

From 1933, the low point of the depression, up to the present, the number of gas customers has increased from approximately 15 million to 25 million. This customer growth of about 67 percent far exceeds the population increase of the last 20 years, which amounted to less than 23 percent.

For the year ended June 1951, total utility gas sales amounted to over 45 billion therms as compared to 10½ billion therms in 1933. In other words, in less than two decades the industry has more than quadrupled its sales volume.

Total industry revenues in 1933 were $680 million. Today, they are around $2,200,000,000, or more than three times those of 18 years ago.

Total assets of the industry today, at about 10 billion dollars, are about double those in 1937, the first year for which industry data are available.

This growth has been intensive as well as extensive. For example, the consumption per customer has doubled since 1933, and the revenue per customer has increased over 95 percent.

All these factors are direct evidence of growth. The industry has translated this growth into improved earnings as indicated by the increase in net income from approximately $130 million in 1937 to about $350 million as of today.

Composite statistics for the gas industry are indicative rather than conclusive. The industry is composed of a number of diverse segments. There is, for instance, a large

echnologies on the gas industry

difference between a pipeline system and a local distributing company. There are also considerable differences between straight gas companies and the gas departments of combination utilities. But make no mistake; there is a degree of unity of purpose within the gas industry unsurpassed, to my knowledge, by any other industry.

The focal point of this unified approach is the American Gas Association. Companies serving all but a small fraction of the nation's gas customers support and actively participate in A.G.A. activities. Gas utility men are realists and, as such, are quite aware that no one of them has all the answers. Industry meetings and A.G.A. committee work provide an effective means for free exchange of ideas.

PAR program

The gas industry is quite aware of the necessity for promoting business and carrying on technical and economic research to improve operating efficiencies. In these endeavors each company conducts its own program, but basic promotion and research can most effectively be performed by group effort. Consequently, after considerable study by responsible industry executives, the PAR program was initiated in 1945. The initials "PAR" stand for "Promotion," "Advertising" and "Research." This is a true industry program supported by special contributions by member companies. In addition to $800 thousand from regular company contributions and $900 thousand from special contributions to the A.G.A. Laboratories fund, expenditures under the PAR program are currently running at about $1.7 million annually. This is over and above the promotional, advertising and research expenditures of individual gas utilities and gas appliance manufacturers. The PAR program has tremendous plus value in two directions. In the first place, it fills in gaps in important general promotional and research activities not economically feasible for individual companies to undertake. Secondly, it acts as a catalyst which coalesces many diverse, separate plans into a unified whole.

Promotion

While members of the gas business have confidence in the value of the fuel service they supply, they also know from long experience that promotion is necessary to maintain a healthy and balanced growth. The graveyard of American business contains many tombstones for enterprises which overestimated the solidity of their position in the markets which they once served. The American consumer is fickle, completely unsentimental, and often unrealistic. He will buy a Cadillac where some smaller car would more economically serve his needs. He will buy a particular cooking range because his wife is more interested in how it fits in with the decor of her kitchen than how efficiently it will cook. He will not take the time or expend the effort to find out for himself the relative merits of two products. He prefers to be sold, and he must be resold again and again.

Under the PAR program, meetings of gas utility sales executives are held to study new techniques of selling. National integrated selling campaigns such as the Old Stove Round Up are initiated. Attractive industry exhibits are arranged for such national shows as the National Home Economics Show, the Master Plumbers' Annual Convention and the National Restaurant Show. Under PAR direction, the industry has been highly successful in having gas appliances appear incidentally in motion pictures, television shows and commercial films. Special educational films on gas and gas appliances have been made and are used with schools and civic groups.

Advertising

The advertising phase of PAR is devoted to presenting the industry's story in national magazines and business papers. These media are obviously not feasible for individual companies whose service areas are localized. The national advertising program makes use of all the major magazines and is carefully designed to provide coverage throughout the years. It is coordinated with national pro-

motional programs. The PAR expenditures for advertising are now at the rate of approximately one million dollars per year.

Research

The 1950 PAR report states "Today's research pays tomorrow's dividends." No truer words were ever spoken. In looking at the gas industry today, it is obvious that a great change is taking place. Natural gas is now available, or soon will be, to all the major consuming centers of the country. Thus, to a large extent, the basic character of the gas business is undergoing a fundamental change. Whereas we have spent a large portion of our existence in producing gas by a highly technical chemical process of upgrading raw materials such as coal and oil, we are now increasingly relying on natural gas, which requires virtually no refining. And yet, in the face of this tremendous change, we in the gas industry are spending increasing time and money on gas production research.

There are two primary reasons behind this apparent inconsistency. As most of you know, long distance pipelines are tremendously expensive to build. The answer to successful operation of these projects is a maximum volume delivery of gas. Maximum delivery occurs when the full capacity of a line is utilized day in and day out throughout the year.

Unfortunately, the average gas customer does not use gas at an equal rate throughout the year. Consequently, most pipelines sell gas to distributing companies on a demand/commodity type of rate. Under such a rate, the pipeline contracts to deliver at all times a fixed amount of gas every day during the year. The distributing company is obligated to pay a fixed charge for this commitment whether or not it actually uses the gas. Under these circumstances, a distributing company could not afford to contract for natural gas up to its peak requirement which might occur one day a year.

The problem is generally met by the distributing company contracting for a lesser amount which it can utilize fairly constantly throughout the year. The excess use above this base load it supplies through a substitute gas produced from its own production facilities. Such facilities are designed for intermittent operation and, of course, also serve as emergency standby in the event of pipeline supply failures. As the distribution company loads increase, it will be necessary even with higher deliveries of natural gas to enlarge the quantities of gas made. It is thus apparent that a definite economic necessity exists for constantly improving the efficiency of the process for making gas.

Much of the research required to realize such efficiencies involves reexamination of basic theories of gas technology. Few individual companies have either the staff or facilities to undertake such studies. The research phase of the PAR program meets the need by contracting projects of this type to qualified research institutions, such as the Institute of Gas Technology, Battelle Memorial Institute, Bureau of Mines, A.G.A. Laboratories and various qualified universities. To date, more than $1,500,000 has been expended in the field of research.

Gas production research has already resulted in important technical improvements and has implications beyond the immediate situation. Natural gas supplies are still far in excess of current demands. Based on proved reserves, the supply is more than 25 times the annual national consumption of gas. One acknowledged expert has estimated that, with reasonable expectancy of new gas field discoveries, this ratio may be as high as 70 times annual use.

For the last fifty years, geologists have been estimating the ratio of gas reserves to use, and throughout the ratio has not varied substantially from around 25 times. The technology of underground geologic analysis has advanced rapidly in recent years. Many qualified men in our industry feel that future discoveries of gas fields will expand known reserves far beyond anything we can presently conceive. It is not unrealistic to imagine natural gas reserves in this country which will be adequate for the next thousand years.

However, as an industry with a proud tradition of public service, we would be moving contrary to all our instincts if we now rested on our oars under the assumption that natural gas was the final solution to all our problems. With the great advances taking place in all phases of the physical and chemical sciences, it is entirely possible that some day we can produce a substitute gas lower in cost than natural gas. We intend to expand, and we expect to continue in profitable operation regardless of any changes which may some day occur in the supply and price of natural gas. This is the second and perhaps most important reason for a continuous research program on the technology of gas production.

Study other phases

Under PAR direction, there are many other research projects in progress dealing with natural gas transmission problems, gas utilization, appliance performance, metering, safety devices, and many other phases of the gas business. Total expenditures for PAR-financed research now run about $600 thousand per year.

Among the research projects included in the program are: carbon-oxygen-steam reactions; catalysts for gaseous reactions; pressure coal gasification; interchangeability of oil gas and natural gas; pipeline flow investigation; heat transfer in gas space heating furnaces; induction heating in relation to industrial gas heating; and nitrogen removal from natural gas.

Outstanding work is being done by the A.G.A. Laboratories. Two laboratories are operated by A.G.A.; the main one in Cleveland and another on the west coast. The Laboratories over the last twenty years have carried out a practical program of appliance testing which has resulted in more efficient and safer gas appliances.

The Laboratories have established minimum requirements for gas appliances and permits the A.G.A. Seal of Approval to be affixed to gas equipment which has met those standards after a careful laboratory test. Today, 95

percent of the gas appliances sold bear this seal. No major appliance manufacturer would think of attempting to sell equipment without the Seal of Approval.

A major portion of the Laboratories' research has been in gas utilization, but it has a splendidly trained staff of gas technicians who are capable and who are being used today in other fields of gas research as well.

Future developments

An industry which has grown and developed through the vicissitudes of the last 135 years has not reached its present state of financial health and vigor by chance. It has done so by looking ahead and planning for tomorrow. It would be sheer conceit to say that the gas industry has made no mistakes, but it is accurate to claim for it a heavy balance on the right side of planning. No business has an easy road to financial success, and the gas business is no exception. There are many problems before it, but steps are being taken to meet them.

Natural gas availability

One of the major problems is how to step up the availability of natural gas at the consuming centers to keep pace with the sharply rising demand for gas.

With the fairly recent development of market areas far distant from major gas fields, it has become increasingly difficult to increase natural gas deliveries at the consuming centers except at higher cost and heavier capital commitments. The industry is devoting much effort to minimize this problem by improving the accuracy of demand estimates, increasing the efficiency of existing pipelines, and finally by developing underground storage at points closer to the market areas. Also the basis of establishing rates for heating service, which is the main contributor to the winter peak supply and cost problem, is being restudied. Out of these varied approaches a solution will be found.

Natural gas reserves

The most recent estimate of the A.G.A.'s Committee on Natural Gas Reserves made in December 1950 was that proved reserves amounted to 186 trillion cubic feet. This compares with a production rate last year of approximately seven trillion cubic feet. Both are higher today, but the ratio of 27 times reserves to use is not materially changed. Lyon F. Terry of the Chase Bank estimates that future recoverable natural gas supplies in this country will exceed 500 trillion cubic feet. Certainly, on the face of it, this is a satisfactory prospect for the gas industry.

The additional gas still to be discovered will cost more. This gas will be found only after extensive exploration. Natural gas was generated by the same geologic circumstances as oil and is generally discovered in the search for the latter. Although fantastic new techniques have been developed for finding new supplies of gas and oil, wildcatting is still a very risky business. And it may be a surprise to you to know that really new fields of gas and oil are generally found by the independent wildcatter rather than the major oil companies. In 1950, for example, 76 percent of the rank wildcats (that is, those in unproved areas) were financed and drilled by independents.

The average cost of a wildcat is around $90,000 with one-chance-in-nine of finding sufficient oil or gas to get the money back and one-chance-in-44 of making a large enough strike to make the venture profitable. This is a high risk factor and one that requires and deserves the prospect of high return. Certainly the recent attempt to bring gas production under regulatory control is not in the public interest if it impedes the possibility of new gas discoveries. Regulation of this phase of the gas business by utility return standards would drive away the rugged independent wildcatter who gambles against great odds in hope of winning tremendous stakes.

The wildcatter, though he may not realize it, is a most important person for the gas industry. We applaud his courage, hope for his success, and ask that he be allowed to search for his El Dorado without being tied by regulatory restrictions. We recognize that drilling costs will rise for each year the wells go deeper, but even though the field cost of gas increases, it is a trend infinitely to be desired over one of a declining rate of new discovery.

Accelerated demand for gas

The demand for gas, both in the home and in industry, is rising rapidly. Part of this arises from the startling shift of fuel price relationships since the start of World War II. Since 1935 for example, the retail price of coal has increased about 110 percent, oil about 118 percent, and gas slightly over two percent. In many sections of the country, gas is actually lower on a straight fuel cost basis than oil or coal. These latter two are our major competition in the home heating market.

Even before this change in relationships, there was a steady shift to gas house heating; since the war it has become a stampede. It has been difficult to add capacity fast enough to meet this demand. Consequently, many gas companies today are operating under federal or state restrictions which strictly limit the addition of new heating loads. *The shortage of natural gas today is the direct result of the shortage of steel arising out of the nation's defense program.*

The gas industry does not expect favored treatment in the allocation of scarce materials, but there are a few pointed observations that should be made on this subject. A major portion of the gas industry are public utility companies. Such companies are under a statutory obligation to serve all customers at all times for all types of gas service. Furthermore, such companies operate within a fixed franchise area. Finally, such companies operate with a regulated limit to return on investment. Our home heating competitors operate without any of these restrictions.

With our long utility tradition, it is most repugnant for us to be forced to turn away customers seeking our service. It becomes doubly so when we see oil and coal home heating equipment installed as a substitute for our service. As a

matter of cold fact, less steel, copper and aluminum is involved in a gas heating installation than one of comparable performance using oil or coal. Under this unusual condition, the customer is denied the service he desires; he pays more for his equipment and in many cases more for his fuel; he requires more of the metals in critical supply; and the gas company loses a customer which in normal times it would attach.

The final touch of irony comes when the supply of coal and oil is temporarily disrupted—as it has been in times past—and the customer turns on all his range burners and huddles with his family in the kitchen while the gas company strives desperately to meet the abnormal peak in gas demand.

These are unusual times, and temporary injustices are to be expected; but if we in the gas industry are to be subject to special restrictions, then in fairness to our investors, employees, and customers, we feel that competing fuel industries should bear their fair share of the burden. If they do so and restrict equally their new business, perhaps we will get larger quantities of steel, or at least more will be available for defense production.

Economics of gas pricing

Gas house heating, except for old natural gas areas, has always been sold as a quality fuel at a premium over competitive fuels. Until the comparatively recent change in price relationships, it had been acquired fairly slowly, and at a pace which did not pose difficult capacity problems for the gas company. As a load, house heating is desirable because it is large in volume. It has, on the other hand, the disadvantage of having a low load factor which magnifies a company's peak-day problem.

The greatly expanded demand for gas as a home heating fuel is not entirely due to price. It has been supported in part by an increase in the value of the service. In other words, consumers today are attaching greater value to the benefits of gas heating, i.e., cleanliness, constant fuel supply, small space requirements of the equipment, low cost of equipment and gas company service.

Under the usual regulatory process, a gas utility is limited to a fixed over-all return on its net investment. The effect of this is to produce a rate structure in which the heating rate is often below the value of the service—which means a price lower than a majority of the customers are ready and willing to pay. With huge waiting lists of customers desiring gas heating in many sections of the country, the economics of pricing gas heating is a matter of serious thinking throughout the industry.

A word of tribute is due the great majority of utility commissions of this country. For the most part, they are staffed by capable, conscientious, practical men, often serving at grossly inadequate salaries. It has been increasingly evident in recent years that most regulatory bodies fully appreciate that good utility service can only be supplied by a financially sound company. This does not imply that, as a regulated industry, the gas business expects favored treatment; but industry leaders are confident that they can work with regulatory bodies in an atmosphere of mutual respect and good faith to the end that action will be taken which is truly in the public interest. And that includes the interests of investors and employees as well as consumers.

Statistical data are readily available. Particularly valuable is the annual statistical bulletin prepared by the A.G.A. Statistical Bureau entitled, *Gas Facts*. This book is carefully designed to provide industry statistics for financial people. It should be in each analyst's and each stock broker's library.

Gas industry management recognizes the important part the security analyst plays in the complex economic system of this nation. His is a great responsibility in determining how, where, and when funds should be invested in all the varied industries of this nation. We are a large industry, and our need for capital is never ending. We need the analyst's comprehension and we are happy to discuss our situation at all times with frankness and detail.

The more than 1,000 companies comprising the gas industry and the American Gas Association headquarters located here in New York, are ready to furnish information at any time. The cold figures of a financial statement are only a part of good analysis. We will give you all the figures available, but we urge you to discuss our affairs with us in person. We are confident that as an industry we are moving ahead, and we urge you to join with us in making our contribution to the forward progress of this great nation which we so proudly serve.

Report study of gaseous reaction catalysts

a PAR activity

I.G.T. Bulletin No. 10, "Sulfur Poisoning of Nickel Catalysts," by C. H. Riesz and H. A. Dirksen of I.G.T. and W. J. Kirkpatrick of International Nickel Co. has been distributed. This bulletin reports work under Research Projects CPR-7 and CPR-7C, "Catalysts for Gaseous Reactions," sponsored by the A.G.A. Gas Production Research Committee under the auspices of the PAR Plan. In this bulletin are reported: 1. a study of effects of specific sulfur compounds on the catalytic gasification process, and 2. the development of a "sulfur active" nickel sulfide catalyst, also for the gasification of hydrocarbons.

The effect of the various types of sulfur compounds that can and do appear in various feedstocks upon the nickel catalyst used in the reforming operation is given. The proper revivification of affected catalysts, it is pointed out, is necessary to maintain capacity of catalytic reformers. The necessary factors for proper revivification are discussed.

In the work on sulfur active catalysts, supported by a contribution from the International Nickel Co., Inc., it was reasoned that nickel sulfide would not be adversely affected by sulfur in the feedstock. Unfortunately, however, it was found that although these catalysts do promote the reforming operation those tested were not sufficiently active for gas industry requirements.

This bulletin, covering the important factor of sulfur poisoning in catalytic reforming, is a valuable addition to the gas engineers' library. Copies are available from A.G.A. Headquarters and from the Institute of Gas Technology.

Annual savings of a half-million dollars are foreseen through use of a newly developed cracking system

A.G.A. patents high Btu process

a PAR activity

Patents on the Hall High Btu Process have been granted to the American Gas Association. The process had been assigned by its inventor, Edwin L. Hall, director, A.G.A. Laboratories and assistant managing director of A.G.A., to the Association.

Applications for the patents were prepared upon the basis of experimental research tests and demonstrations sponsored by the Gas Production Research Committee and conducted cooperatively with The Consolidated Gas Electric Light and Power Co. of Baltimore, under the auspices of the PAR Plan. U.S. Patents No. 2,580,766 and No. 2,580,767 were issued January 1, 1952 upon these applications.

Since an analysis of the complete Hall Process as originally designed and operated appeared to involve a combination of two distinct and independent inventions, a separate application was filed upon each. In the second of these applications the combination of both inventions into one four-way process cycle was also specifically claimed. This procedure was followed because in the event that either process step was adjudged novel and patentable, its combination with the other step—or any other step—would also be patentable as a novel combination. As it happened both applications were found to be independently patentable, and hence both were brought to issue.

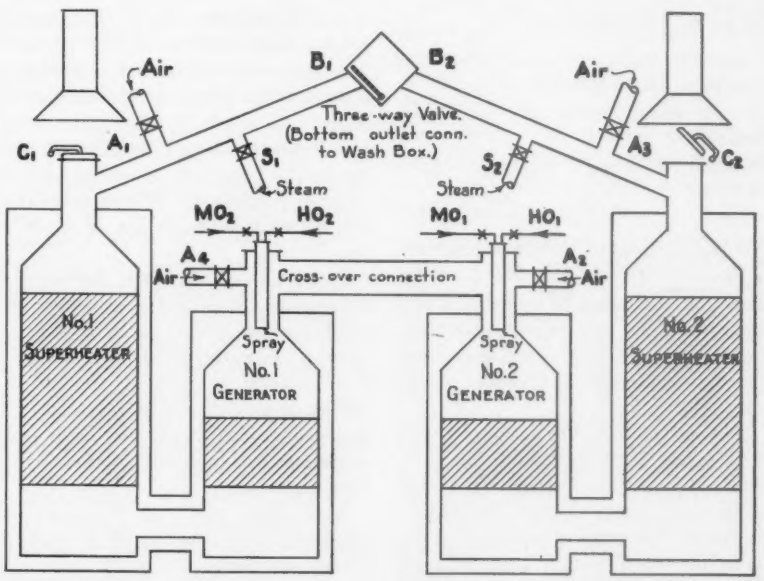
U. S. Patent No. 2,580,766 deals with a novel process cycle or sequence of operations which effects a highly efficient utilization of the carbon deposited in the previous gas making cycle as fuel during the subsequent heating cycle in that portion of the gas making system. It has the further important effect of eliminating lost time for scurfing when high carbon oils—up to 12-13 percent Conradson carbon—are employed.

This patent gives the nature of the four-way cycle employed and also the general arrangement of the gas making units upon which the effective use of such a cycle depends. The latter comprises essentially the direct coupling of two independent combustion-vaporizing zones to each end of which a fixing zone is attached; the whole assembly forms a continuous path of stored heat. The claims in this patent are directed solely to the sequence of steps in the process cycle and not to the apparatus employed.

The first three claims in U. S. Patent No. 2,580,767 are directed to a novel process cycle for regeneratively heating the process steam. By creating a preferred temperature gradient which is higher in the central portions of the system and coolest at the ends, this increases the fuel economy for which the Hall Process is notable by lowering the temperature of the exit gases and reducing the sensible heat losses. This favorable temperature gradient is created by repetition of the steps in which low temperature process steam and air are admitted alternately at either end of the cracking system.

Other claims under this patent cover

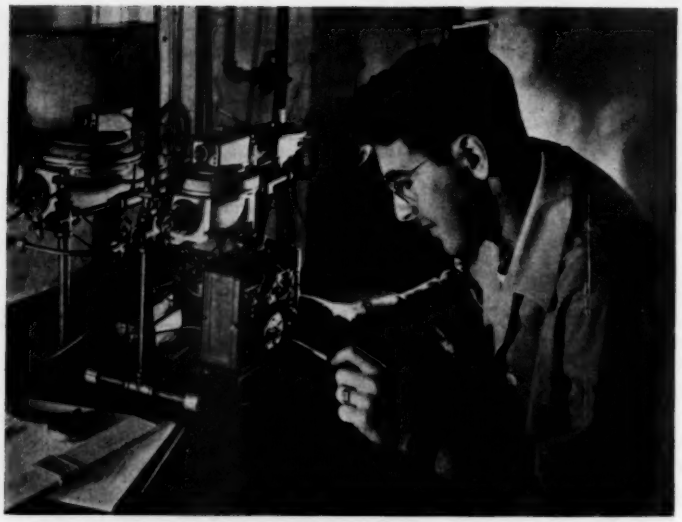
(Continued on page 48)



Schematic of the four-shell type generator originally developed for the Hall High Btu Process

House heaters are subjected to rigorous examinations for both performance and safety

Tests of accessories help simplify over-all testing procedures for complete appliances



Standards point the way

By E. H. EACKER

President, Boston Consolidated Gas Company, Boston

Vice-President, American Gas Association

Director, American Standards Association

Standardization has become a dominant characteristic of American business. Standards as a means of economical and safe production, as a management technique, as an aid to purchasing, as a stimulant to sales, are now basic to the nation's economy.

Nowhere in American industry is this development better or more broadly exemplified than in the industry that brings the heat and energy of gas to the American public. The story of standards in the gas industry is an object lesson in self-regulation. It is a prime example of the wise use of standards to promote safety. It is an illustration of how standards can help to build products of high performance, efficiency and quality at a decreasing cost to the consumer. It is a model of cooperative effort between government and industry. The gas industry, in fact, can be and frequently is cited as a model of what business can do with standards, and of what standards can do for business.

Now, with war in Korea, rearmament at home, and shortages of machines, materials, and equipment, standards have become more important than ever to American industry in general and to the American gas industry in particular. The part standardization will play in the years and decades to come will increase rather than diminish.

Throughout the past 35 years, the standardization program of the gas industry has been principally concerned with standards for quality as shown in the safety and performance of its products and equipment. In carrying out its long-range program, the American Gas Association, working with the American Standards Association, has developed some thirty American Standards for performance, covering approval and installation requirements of gas burning appliances. These thirty-odd American Standards range from approval requirements for domestic gas ranges or for hotel and restaurant deep fat fryers, to listing requirements for automatic main gas-control valves or for gas appliance thermostats.

Late in 1950, however, the gas industry moved beyond standards limited to performance of appliances. With the approval of the "American Standard Installation of Gas Piping and Gas Appliances in Buildings" (Z21.30-1950), it pushed forward into a new field of gas industry standards. This standard is the cumulative result of years of work and experience of the many men and organizations

The performance of water heaters is studied to determine output under stated conditions

After tests are completed, the complete data is assembled into a final appliance report

represented on the Approval Requirements Committee of the American Gas Association, organized and working under the procedures of the American Standards Association. It is a long step forward toward the enactment of uniform legislation on the installation of gas burning equipment, and in protecting the American public by assuring the safe and satisfactory utilization of gas.

In planning and executing their standardization programs, the gas utilities and the gas appliance manufacturers have worked closely with the other organizations that are directly concerned or have a substantial interest in gas industry standards. These include home economics groups, architects, insurance associations, heating contractors, labor unions, plumbers' associations, at least six government agencies (health, nutrition, housing, mines, Quartermaster Corps, Bureau of Standards) and others.

Such widespread participation by various groups is a marked feature of the standards movement today and is a basic principle under which the American Standards Association operates. The American Gas Association, in turn, participates in a number of standards activities which are outside its own industry, but in which it has a vital interest.

One such standard is the "American Standard Manual for the Computation of Strength and Thickness of Cast Iron Pipe." Another is the "American Standard Code for Pressure Piping." American Gas Association has played a leading role in the development of standards for cast iron pipe and fittings. In this project, that part of the work that is of particular interest to the production and distribution of gas has led to the development of complete engineering requirements for determining the size of cast iron pipe (and fittings) to be used. Requirements have also been produced for the provision and specification for all sizes of pipe used or suggested for use, together with detailed specifications for several types of joints, some of which promise new economies in installation and maintenance.

Aid maintenance and safety

This interdependence and wide use of standards was stressed in a recent statement made by the executive of a utility distributing natural gas in one of the southern states. In replying to a survey made by ASA for the Economic Cooperative Administration, he stated, in part:

"We, of course, use many standards in the pursuit of our business. Our piping and pressure vessels are well designed in accordance with standard codes. We use standard drafting room practices and symbols. Valves of different manufacturers are made to standard dimensions so that they may be interchanged without piping revisions."

In the same survey an official of a company providing both gas and electric service in a large city in the Northeast commented:

"The gas industry since the middle '20's has very effectively used standardization, primarily to promote safety in the use of gas burning appliances. But the effects of standardization have gone much further to assure purchasers of such equipment a reasonable minimum in performance, efficiency and quality of product."

One executive of a company supplying natural gas to communities on the Pacific Coast stated:

"Our company has been growing rapidly and, in most cases, the benefits we have derived from standardization have been indicated by the fact that we have been able to absorb growth without corresponding increase in staff.

Industrial standardization is essentially a concept and development of this century, and particularly of the years since America's entrance into World War I. In the history of modern standards, the gas industry stands out as one of the pioneers. When we trace the development of one of the basic standards of the gas industry, we give a typical picture of the rise of standards movement in American industry.

At the same time, in following a standard through birth and 35 years of growth, we can effectively illustrate the way standards are created, and the prin-

ciples and procedures on which A.G.A. and ASA operate.

The first definite step toward unification of appliance standards and requirements for the installation of gas burning equipment, on a national scale, was taken in 1915. Three years earlier, committees of the American Gas Institute and the National Commercial Gas Association had jointly prepared specifications for gas ranges. In 1915 they recommended that a standing committee be set up and charged with the responsibility for conducting a study of continuing standardization of gas appliance specifications.

See need of safety code

At the same time, it was recognized that there was real need for a uniform gas safety code in the nation. Many municipal, state and federal bodies were drawing up codes for the guidance of architects and builders. Some fifty American cities had enacted restrictive ordinances covering the sale of gas burning appliances, and in almost none of these cities did the ordinances agree with the ordinances in any other city. Manufacturers were required to make costly individual changes in their products to fit them to local regulations, or else stay out of that market entirely.

America has grown economically strong because its states and cities have formed a great free national market unhampered, in many respects, by varying restrictive local ordinances. But here were restrictions which made a free national market in the gas industry impossible.

Thus, in 1915, the American Gas Institute, the National Commercial Gas Association and the National Bureau of Standards began to collaborate in gathering the necessary information for the formulation of uniform safety codes.

In a parallel effort, the National Fire Protection Association's Committee on Explosives and Combustibles appointed a subcommittee to prepare a fire protection code for city gas installation. The NFPA adopted such a code in 1920, and the National Board of Fire Underwriters printed it for general distribution.

When the American Gas Association was formed after World War I, it assumed the standardizing activities started by its predecessor groups. One of its first steps was to approach the American Standards Association (then known as the American Engineering Standards Committee) to request it to arrange for the drafting of a code.

Considerable investigation and many conferences followed. There was a common pooling of information, effort and research, effectively directed to a common goal. On March 10, 1927, the "American Standard Gas Safety Code for Installation and Work in Buildings" (K2-1927) was approved by ASA and given to the industry. This code, a landmark in the industry, was the forerunner of a number of standards for gas equipment and installation requirements that are today recognized throughout the world.

At the same time, the A.G.A. had been organizing an Approval Requirements Committee to supervise standardization of appliance and installation specifications. This committee created several subcommittees, each specializing in a particular field or concentrating on the solution of a designated problem.

One of the first subcommittees named was the Subcommittee on Requirements for House Piping and Appliance Installation. It was assigned the duty of preparing installation standards to supplement the general requirements for gas piping and appliances of the Gas Safety Code, which was then being prepared.

As a result of this subcommittee's work, tentative specifications were published and distributed to the industry for criticism. Certain changes were recommended by various people and these were made. The A.G.A. Approval Requirements Committee then reviewed the revised specifications, agreed on further modifications, and published a second edition of the tentative requirements. This new text was distributed once more to the industry, once more revised, and finally approved by the Approval Requirements Committee. That Committee's action was ratified by the Executive Board of A.G.A., and the first edition of the final text was published in June, 1928.

In September 1930, the Approval Requirements Committee of A.G.A. became the Sectional Committee on Approval and Installation Requirements for Gas Burning Appliances (Z21) of the American Standards Association. The Subcommittee on Requirements for House Piping and Appliance Installation automatically was renamed a subcommittee of the ASA Sectional Committee. From that time on, A.G.A. and ASA worked even more closely together on a progressive standardization program, carried out under ASA procedures which call for consensus approval by all parties concerned before an American Standard can be certified as such.

Following are some of the important landmarks in the gas industry's development of standards as a means of providing safe, trouble-free service to its customers:

1930—The NFPA adopted amendments to its text concerning boilers and furnaces.

1932—The NFPA made an extensive revision of this text with the cooperation of the A.G.A. and the Bureau of Standards.

1933—This modified text was approved by the American Standards Association as the "American Recommended Practice for the Installation, Maintenance, and Use of Piping and Fitting for City Gas" (Z27-1933). (Also published by the National Board of Fire Underwriters as Pamphlet No. 54).

1936-1938—Comprehensive revisions were made in the "A.G.A. Requirements for House Piping and Appliance Installation Code." Need for these revisions arose because of improvements and changes in domestic gas equipment. It was decided to correlate these requirements with the latest practices of the industry, as well as with applicable regulations of the NFPA, since these requirements were being widely used as a basis for ordinances enacted by municipal, state and federal agencies.

1940—The resulting standards incorporating these changes were printed and submitted to the industry for criticism. Changes were made in line with suggestions received. Final text was approved by the ASA Sectional Committee and the revised requirements were published as the second edition of "A.G.A. Requirements and Recommended Practice for House Piping and Appliance Installation."

1943—The NFPA adopted revisions to the "American Recommended Practice for the Installation, Maintenance, and Use of Piping and Fitting for City Gas" (Z27). The resulting standards were published in the "National Fire Code, Volume I," and in a revised Pamphlet No. 54 by the Board of Fire Underwriters.

1946—A decision was made to work out an up-to-date American Standard to cover installation of gas piping and appliances in buildings, for the guidance of municipalities, state and federal agencies, architects and builders. To expedite this movement, ASA Sectional Commit-

tee, Z21, and its House Piping and Appliance Installation Subcommittee, were expanded to include a representative of the National Board of Fire Underwriters. This representative also served as liaison between these committees and the NFPA's Committee on Gases.

1948—The House Piping and Appliance Installation Subcommittee held four extended meetings.

1949—A proposed standard was circulated for criticism. It went to gas companies, gas equipment manufacturers, fire insurance underwriters, safety and accident prevention organizations, public utility commissioners, building officials, manufacturing associations, consumers' groups, labor unions and others.

Meanwhile, at the request of the sponsors, approval of K2-1927 and Z27-1933 were withdrawn by the ASA.

A large accumulation of industry comments were reviewed by the subcommittee. Revisions were completed and some of these, which were quite extensive, again were submitted to those groups which had been given copies of the original text. Further revisions were made as indicated.

1950—The text was accepted and approved by ASA Sectional Committee Z21. It was then reviewed by the NFPA's Committee on Gases and some further changes made on its recommendation.

The resulting text was approved by the NFPA Committee on Gases and was adopted by the NFPA body at a general meeting. It was approved by ASA Sectional Committee Z21 by letter ballot. It was approved by the sponsor of the whole project, the American Gas Association. On December 5, 1950, the standard was approved as an American Standard by the American Standards Association.

As a result there is now available an identical gas appliance and gas piping installation standard from gas industry, fire protection and fire insurance sources. It is known as ASA Z21.30, "American Standard for Installation of Gas Piping and Gas Appliances in Buildings" and as Pamphlet 54 NFPA or Pamphlet 54 NBFU.

This wide endorsement and acceptance offers city and state agencies charged with the formulation of modern building codes valid grounds for adopting Z21.30. Thus another step has been taken toward the uniform building code of the future.

This history of the evolution of an important American Standard not only demonstrates that the gas industry blazed a trail in early standards activities, but also that it has maintained interest and active participation in all organized efforts to create new standards where desirable and to improve old ones. It is on the basis of work such as this that the gas industry can claim with justice that it has gone further in self-government and self-regulation than any other American industry.

The A.G.A. Laboratories in Cleveland and Los Angeles; the cooperation with the work of the Gas Appliance Manufacturers Association to develop new, safer, more economical and more efficient products; the A.G.A. Seal of Approval; the unscheduled inspections by A.G.A.

(Continued on page 41)

Gas utility and pipeline financing set record

The total volume of long-term capital financing by straight operating gas utilities and pipelines during 1951 reached $808 million, a new annual peak. This represents a rise of 6.9 percent over the $756 million raised during 1950, according to preliminary estimates prepared by the Bureau of Statistics of the A.G.A. As indicated by the word "straight," these data exclude the financing activities of combination companies which distribute electricity as well as gas.

Of the $808 million obtained during 1951, $742 million was raised by natural gas companies, as compared to a total of $709 million during the previous year, equivalent to a rise of 4.7 percent. The inference may be drawn that, in spite of material shortages, the industry's vast construction program continued at its accelerated pace, although it is undeniable that some delays and postponements were encountered.

Long-term financing by combination gas and electric operating utilities during 1951 was $669 million, a reduction of 17.5 percent from the $811 million in 1950. While the financing needs of the gas departments of these utilities is a significant proportion of the total, there is no accurate basis for determining the amounts required, and totals for such companies are, therefore, less meaningful for analytical purposes.

VOLUME OF STRAIGHT GAS UTILITY FINANCING, 1950-1951, BY TYPE OF ISSUE
(Million)

Type of Issue	All Straight Gas Companies		Straight Natural Gas Companies	
	1951	1950	1951	1950
Total	$808	$756	$742	$709
Common Stock	54	68	52	54
Preferred Stock	75	69	71	61
Long-Term Debt	679	619	619	594
Bonds	455	387	409	373
Debentures	87	99	87	94
Notes	137	133	123	127

In addition to the financing completed by the straight and combination operating companies, a total of $242 million of new financing was obtained by gas utility holding companies in 1951. This compares with a total of $260 million for such holding companies in 1950. The total volume of capital financing by all the above groups for 1951 was $1.72 billion as compared to a total of $1.83 billion in 1950, a decline of six percent.

An analysis of the volume of new security issues sold by straight gas companies reveals substantial changes in the types of securities sold in 1951 as compared with the previous year. Despite the larger total volume of financing, common stock issues in 1951 were 21 percent smaller in amount with preferred stock issues being nine percent higher, while long-term debt issues advanced ten percent. The increase in debt financing was particularly marked in the case of bonds, where the amount issued during 1951 was 18 percent greater than in the preceding year. The details of financing during the two years, for all straight gas companies and for straight natural gas companies, is indicated in the accompanying table.

PAR programs strengthened for '52

a PAR activity

Enlarged programs of promotion, advertising and research during 1952 have been charted by the A.G.A. PAR Committee. Stepped up promotion programs are planned as a means of retaining and developing business during anticipated heavier competition. Each portion of the promotion and advertising program is being authorized on a four-months-in-advance basis. The research program has been expanded to include current and additional projects of greatest potential value to the industry.

Promotion plans broadened

Seven industrywide promotions, to cover all major appliances, are being continued and a commercial cooking promotion has been added. The Hollywood program has been enlarged to cover TV studios and producers of commercial ads and shorts.

In addition to the continuation of such projects as the New Freedom Gas Kitchen, production of point-of-sales materials and gas industry exhibits in eight national shows, the Range Ignition Field Test Program will be carried through to completion during the year.

A comprehensive dealer merchandising program is a new project planned for the year. This will include case studies of dealer merchandising plans, text material for dealer meetings and a sales training program for company and dealer salesmen.

Two additional men are being added to assist companies in developing and putting into operation effective dealer merchandising programs. They will also contact state and regional associations and individual gas companies to assist them in their participation in national promotions.

A complete study of the A.G.A. education program is being made and new text materials produced under the direction of qualified counsellors.

Promotion plans are being authorized on a four-months-in-advance basis.

Larger advertising program

National advertising, completely integrated with national promotions as a means of pre-selling gas service and gas appliances, will be intensified. This advertising will appear in 15 magazines with 42,170,000 combined circulation.

Domestic range advertising space is scheduled to equal competitive advertising. It is expected that gas water heater advertising will continue to exceed competitive efforts in national consumer magazines. Progress is anticipated in refrigerator and clothes dryer advertising. *Life* and one other magazine will be added to the advertising schedule.

Industrial and commercial advertising will appear in 21 trade publications and in *Business Week*. More space will be devoted to commercial cooking with two new publications added and heavier schedules arranged for some of the magazines now being used.

National promotions will be increased in effectiveness by offering manufacturers, utilities and dealers complete packages of professionally prepared promotional and advertising materials at lowest possible cost.

Research to expand

A well integrated research program of 46 projects has been authorized for the fields of gas production and domes-

(Continued on page 48)

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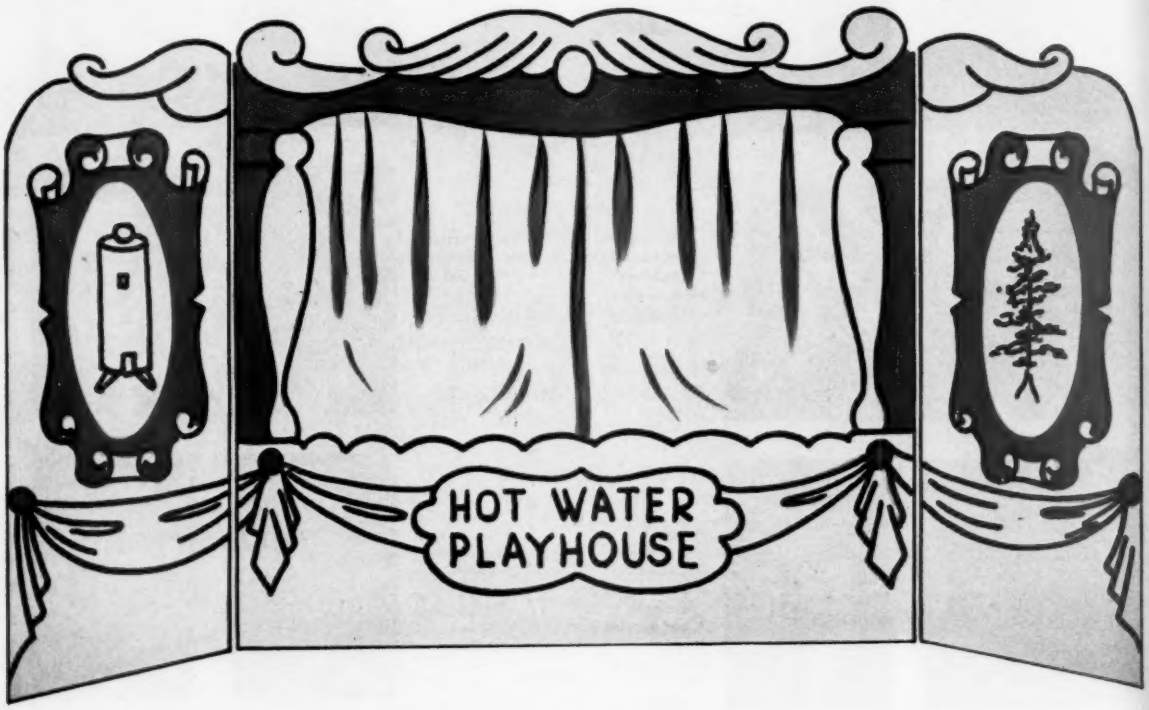
Mountain Fuel
Supply Company

SECRETARY
J. W. West, Jr.
A. G. A.

Inexpensive and ingenious props can give dramatic effectiveness to the presentation of the gas cooking story

Showmanship in home service



By MARY E. HUCK and PAULINE WHEELER

The Ohio Fuel Gas Company
Columbus, Ohio

Playing up the current interest in economical menus, we are using as one of our themes this year, "Bargain Day—The Blue Flame Way," in which we stress not only penny-saving menus but also the economies of cooking with gas. Our gimmick for carrying out this theme is a life-sized piggy bank. As the demonstration starts, the manager, dressed in the piggy bank costume, wanders forlornly through the audience. He is not only unhappy but hungry and thin since the high cost of living has meant very few pennies have been saved in the average household. After being invited to the stage he agrees to stay and watch the cooking school. As the demonstrator gives penny-saving suggestions for recipes the pennies saved are fed to the piggy bank who then seems to show some signs of being happy.

Another idea which we use on this day is to show two market baskets—one filled with the amount of food that could be purchased in 1941 for $10.00 and the other showing the amount which the same $10.00 buys today. We then point out that the cost of gas for cooking has remained the same during this period. To emphasize further the low cost of cooking with gas we have a large gas meter, calibrated in cents, connected to one of the ranges on stage to show how little it costs to cook a complete oven meal, broiler meal, and top-of-the-range meal. The piggy bank, of course, gets quite a handful of pennies at this point in the demonstration.

At the end of the demonstration, after the foods have all been displayed, the lecturer summarizes with the comment, "The pennies saved by cooking with gas are like pennies from Heaven." At this point a net suspended from the ceiling opens to let balloons float down over the audience while a recording plays "Pennies From Heaven." Each balloon is im-

Abridged version of a presentation at the A. G. A. Home Service Workshop, Chicago, January 21-23, 1952.

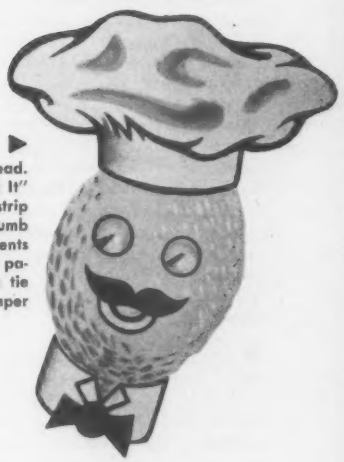
Christmas party favors or table decorations may be made with Blue Flame aprons stuck in flower pots and decorated with tree ornaments and sprigs of evergreen

"Miss Blue Flame" is crowned with a gold foil band with blue flame on front. The head is a "Gas Has Got It" lollypop, the body an inverted cone-shaped paper cup covered with blue foil. A pipe cleaner fastens a "Gas Has Got It" pot holder as a cape, and extends to become the arms

A bowl cover, powder puff and "Gas Has Got It" apron simulate a sunflower. The apron is rolled and its ruffles gathered around stuffed bowl cover and tied with apron strings to resemble a gay and colorful sunflower corsage

A Blue Flame apron becomes the background for a gay corsage made of a lace paper doily, gumdrops and pipe cleaners. The "Gas Has Got It" apron is rolled and its ruffles gathered around the pipecleaners and the doily. The apron strings hold it together

A lemon simulates a chef's head. For the hat a "Gas Has Got It" bowl cover is taped to a strip of white paper. Eyes are thumb tacks or gummed reinforcements and the moustache is black paper. White collar and black tie are made of construction paper



puppet show staged in the Hot Water Playhouse effectually dramatizes the water heater ry to high school groups. The stage has an over-all height of 25 inches, 26-inch width s a seven-inch wing on each side and a 22-inch depth. The stage and all but one of the ppets are made from common household materials. The assembly folds flat for carrying

printed with the slogan—"You San Save a Pretty Penny if You Cook With Gas" and to each balloon is tied a cardboard "copper" penny.

All of these ideas call for special props which are sometimes rather costly. One idea we are using which is fairly simple is based on the theme—"Your Gas Range Takes the Cake the Year Around." For this we show cakes which have been decorated to represent various months of the year ending with a double ring bridal cake and the Wedding March.

Another activity where we try to add some "out-of-the-ordinary" ideas is at our teachers' dinners. For several years now we have given a favor to each teacher. We have found that the teachers like the favors to be something useful but fixed in such a way that it gives them ideas for use in their classrooms later. For the most part we have used standard A.G.A. promotional materials. One year we used a Blue Flame doll made from the "Gas Has Got It" pot holders and lollypops.

For a Christmas favor we used Blue Flame aprons stuck in small flower pots and decorated with small Christmas tree ornaments. The same Blue Flame aprons were used another time with a lace doily, pipe cleaners and gumdrops to form a nosegay. A little chef was made from a lemon with a "Gas Has Got It" bowl cover for a hat. A bowl cover, powder puff and "Gas Has Got It" apron were used to simulate a sunflower. We have used these favors for several years and find now that the teachers look forward to them.

This year we are using a puppet show to dramatize the water heater story for high school home economics and physical education classes and assembly groups. A few script changes make it interesting for high school boys, too.

All but one of the puppets used in the show are handmade from common household materials picked up at the dime store. They are designed of dish mops, buttons, sock darners, plastic bowl covers, paper sacks, rubber balls, all-day suckers, thumb tacks, mailing tubes, Christmas decorations, and of course—pipe clean-

(Continued on page 40)

Industrial relations round-table

Prepared by
A. G. A. Personnel Committee
Edited by Bernard H. Kinzer

● **Hospitality**—The morning coffee hour observance is extended to visitors, too, at a New York City firm. Anyone in the office on business—including job applicants—gets asked if he would like a cheering cup when the breakfast brew is served.

● **Aid**—The Salary Stabilization Board has set up a special industrial relations unit. Purpose is to answer three principal questions: "How do I file an application for raises?", "Do I have enough information on my application?", "What happened to my case filed some time ago?" Mail, phone or inquiries in person will be answered. Address: Salary Stabilization Board, Industrial Relations Staff, 1077 Temporary R. Building, Washington, D. C. Phone: Republic 7500, Ext. 8141.

● **State disability benefits not taxable**—The Bureau of Internal Revenue has ruled that payments to the employee under the New York State disability benefit law are not taxable as income and are not subject to withholding taxes. Payments made by the employer under an approved self-insured plan are deductible as a reasonable business expense as long as they do not include employee contributions.

● **Study inequities in engineering pay**—The Salary Stabilization Board is seeking a solution to salary inequities stemming from the terrific shortage of professional engineers.

S.S.B. plans to treat engineers separately through general rules which are now being developed. Until such regulations are issued, engineers will be treated the same as other employees under general salary stabilization. The S.S.B. previously ruled that they would not exempt engineers as such from stabilization regulations.

● **Check-up**—How do you keep employees' records up to date? Philadelphia Electric hands out a special form every year. On it workers record changes in address, telephone numbers, dependents and similar information. Form is distributed by foremen.

● **Gas company units consolidated**—The Southern California Gas Company has been directed by the NLRB to include professional, technical, and sales employees in a system-wide bargaining unit provided the professionals desire to be included.

The company contended that the units be left on a non-system-wide basis since the unions had been previously certified on a progressive basis in seven of the nine divisions.

The board directed an election on the basis of the entire system, for it felt the time had come to apply the principle of the most favorable unit for utility companies.

● **Violation Insurance**—Many companies with an eye to the future are setting up special reserves to take care of crackdowns by wage and salary stabilization sleuths. Violations of pay rules can be costly if government agents disallow illegal raises as cost items. That's why controllers are advising management to begin setting up financial "kitties" to take care of future "fines." Incidentally, the reserves must come out of surplus monies left *after* taxes. Some employers are under the impression that such reserves can be added to operating expenses and tagged as tax deductible. Not so.

● **Manpower and defense production**—Secretary of Labor Tobin predicts the employment of 8.5 million persons in defense activities in 1952, as against about 2.7 million in 1950. A recent report by the Bureau of Employment Security, which outlines the results of a manpower survey, estimates that two million more defense workers will be needed by the end of 1951 and that 4.5 million more workers will be in defense jobs by the end of 1952. According to official estimates, the work force in 1952 will have reached a peak of 68.4 million. Stressing that the full impact of the defense production program is yet to be felt, the BES report foresees that "a multitude of spot problems, involving individual areas, industries and occupations are likely to arise before peak employment is achieved," and that "a growing number of cities" will have labor shortages and others "substantial unemployment" because of enforced layoffs. The latest BES survey of manpower needs and supply as of September, 1951, shows: 1. that six of the nation's 174 major labor market areas have serious labor shortages, because of aircraft, machine tool and the atomic energy industries, and 2. that sixteen of the areas have substantial labor surpluses, chiefly the result of a drop in demand for textiles, shoes and costume jewelry.

● **Status of unemployment trust fund**—The Bureau of Employment Security has just reported that as of September 30 state unemployment insurance reserves had reached a new high of $7,609,000,000, and final figures for 1951 are expected to total $7,800,000,000. The favorable employment situation last year throughout the country has more than offset the large inroads made in the fund in 1949 and early 1950 by relatively heavy unemployment. Despite serious drains on the fund from unemployment in Detroit and other areas hard hit by the defense program, unemployment insurance tax collections are estimated at about double the benefit payments during 1951.

● **Treasury approves Toledo pension plan**—The U. S. Treasury Department has cleared the way for the Toledo Area Pension Plan by ruling that the companies participating may deduct their contributions from their gross incomes for income tax purposes. Nineteen companies with 1,250 workers have been contributing seven cents per hour per employee into the fund since November 1, 1950, but the money has been in escrow pending Treasury action. First pension payments, beginning this month, will amount to maximum benefits of $117.50 a month for employees of the companies covered—all either small or medium in size, in dissimilar industries that have in common only their location and the relative smallness of their work force.

● **Survey of private pension and welfare funds**—According to a recent survey of the Institute of Life Insurance, employers last year paid $2.4 billion to private pension and welfare funds, a total ten times above that of a decade ago. The post war growth of such funds is especially notable, since in 1946 employer payments reached the level of $1 billion for the first time. The institute points out that the total assets of employee benefit funds is not known but cites the following as indications of the extent of these funds: 1. last May pension funds were listed as subscribing for $1.8 million of new government bond issues brought out at that time, and 2. a government study estimates that self-administered pension plans alone had assets of approximately $5 billion in 1949 and were growing by an amount calculated at around $1.5 billion a year.

● **BLS analysis of labor contracts**—A recently published bulletin of the Bureau of Labor Statistics on the prevalence and characteristics of selected collective bargaining clauses studies a wide variety of collective contracts especially selected from the BLS file of about 12,000 such contracts. Nine subjects are covered—arbitration, paid vacations, dismissal pay, sickness and accident benefits, union security, safety, general wage adjustment, the employer unit in collective bargaining and holidays. Among other things, the study finds: 1. nine out of ten agreements of a total of nearly 1,500 stipulate at least two weeks' vacation and 30 percent specifically allow more than that. 2. relatively few contracts in a sample of over 2,100 provide for dismissal pay; the industries granting the majority of such provisions are communications, rubber, and printing and publishing. 3. some type of nonoccupational sickness and accident benefit is called for in three out of every ten contracts in a sample of nearly 2,150, and 4. over 70 percent of about 2,300 contracts analyzed make provision for paid holidays.

(Continued on page 43)

Selling processing gas on a firm basis, backed by adequate peak-shaving equipment increases sales volume

Fuel for industry

By HARRY K. WRENCH

President and General Manager, Minneapolis Gas Company

When World War II placed excessive demands on the gas industry and on the manufacture of gas-designed industrial equipment, these two industries rose to the demands. The demands were met in a manner of which both the gas industry and the equipment manufacturers can be justly proud.

However, years prior to World War II, with the advent of long distance transmission of natural gas, pipelines were built to carry this fuel to markets served before with manufactured gas. Chicago, Detroit, St. Louis, Minneapolis, and other cities of the Middle West converted either to straight natural or mixed gas. This change took place during the Thirties when prices of gas and construction were low. As natural gas became available to manufactured gas companies, the price of gas to customers was reduced. This caused an increase in the amount of gas used which decreased the cost of transporting the gas which reduced the prices the pipeline company charged the distributing company.

The passage of the Natural Gas Act and the Federal Power Commission's assumption of rate-making powers certainly helped in the reduction. However, during this period the prices of competitive fuels were such that gas had to be sold. Less than fifteen years ago it was necessary to sell house heating gas, even with house heating rates of less than eight cents per therm. We in Minneapolis received natural gas in 1936. At that time, gas at the town border cost us 25 cents per thousand. Since then, it has gone to 19 cents per thousand, and now is 23 cents per thousand.

When it became evident that natural gas was to be made available to Minneapolis Gas Co., F. W. Seymour, president of the company at that time and Richard Wiggin, Minneapolis city attorney, decided that a formula should and could be worked out that would give the gas company a fair return, give gas consumers lower rates, and provide an incentive for the company to increase its business as rapidly as possible. From this came our first rate agreement. In 1940 a new franchise and rate agreement were given to the company in which we were allowed to serve the industry with straight natural gas and also change over to straight natural when economical to do so.

Prior to 1940 we had aggressively sold mixed gas to industry and had built up some interruptible business consisting mostly of spring and fall heating in hotels, hospitals and office buildings. With the granting of the new franchise a straight natural industrial line was constructed to several large industries and our industrial department was expanded.

From the introduction of mixed gas in 1935 to the granting of the new franchise in 1940, we had increased our house heating customers from 1153 in 1935 to 13,238 in 1940. Rates had been reduced so that our average rate had come down from 14.4 cents per therm in 1935 to 11.6 cents per therm in 1940. House heating rates were now 7.7 cents per therm. Gas sales had increased from three million cubic feet in 1935 to 4.5 million cubic feet in 1940.

In a discussion of industrial gas, it is impossible to segregate it from gas for domestic house heating. This is especially true if gas is purchased on a two-part demand and commodity rate as is the case with us. During the years from 1940 to 1950 we increased the number of house heating customers from 24,297 in 1940 to 79,715 in 1950. During the same period we increased the gas we were purchasing to 135,000 Mcf per day in 1950.

As long as companies buy gas on a demand type of rate they will have to sell interruptible gas. In 1940, revenue from interruptible gas totaled $28,144 and interruptible gas sales amounted to 107,249 Mcf. Revenue from firm industrial gas sales amounted to $192,070 for 357,937 Mcf or an average rate of 26.24 cents per Mcf for interruptible gas and 76.62 cents per Mcf for firm industrial gas. In 1950 sales of interruptible gas were 11,865,333 Mcf which produced a revenue of $2,539,245 or an average rate of 21.4 cents per Mcf. Firm industrial gas sales had increased to 1,022,813 Mcf which produced revenue of $552,941 or an average rate of 54.06 cents per Mcf. Total industrial sales increased from 357,937 Mcf in 1940 to 12,888,146 Mcf in 1950, while industrial revenue increased from $220,215 in 1940 to $3,092,186 in 1950.

When I say firm industrial gas, I mean just that. We have never had to interrupt our firm industrial customers, and we have no intention of doing so anymore than we would expect to interrupt gas service to a domestic heating customer. Because of purchasing gas on a demand type rate we take on in addition to our firm industrial load and our domestic and commercial load enough house heat load to use up all our demand when the temperature falls to zero. When the temperature falls below zero we produce gas necessary for our additional load.

(Continued on page 43)

Abridged version of an address before a General Session, A. G. A. Convention, St. Louis, October 16, 1951.

A multitude of variables must be considered when choosing an odorant for newly introduced natural gas

Odorization of natural gas

By A. B. LAUDERBAUGH

Chief Engineer
Pittsburgh Group Companies
Columbia Gas System

In selecting an odorant, when natural gas is introduced, certain variables must be considered.

The most obvious independent variables will be the nature of the service to be expected of the natural gas, that is to say; first, is it to be distributed to a locality that has never had gas service; or, second, will it be used in an area that has had local "wet" natural gas for many years; or, third, is it to be distributed in replacement of manufactured gas?

These three variables will account for a lot of the confusion about the desirable characteristics of an odorant. Suppose, for example, that "dry natural gas," that is, natural gas that is practically pure methane, is now going to be the supply gas for two towns, and that one of these towns has been supplied for many years with "wet" natural gas from local fields, and that the other town has always been supplied with carbureted water gas. Gas engineers from the two towns will agree that the new natural gas should have a "gassy odor," but they are talking about two different odors. The old natural gas operator remembers the odor his gas had when it contained from two to four percent butanes and heavier, and less than a grain of organic sulfur per hundred cubic feet. Meanwhile the old manufactured gas operator remembers the odor produced by the three to seven percent illuminants and perhaps as much as twenty grains of total sulfur per hundred cubic feet in his gas. Each of them knows that if the odor of the gas distributed in his town is changed, he will have to conduct a vigorous campaign to educate his customers to associate the new odor with natural gas.

None of the odorant materials seems to duplicate the odor of "wet natural gas." For that matter, very few of the present odorants really duplicate the odor of manufactured gas either. However, it has been my experience that it seems to be easier to educate manufactured gas customers to a new odor, than to get long time natural gas customers to associate the new odor with natural gas. In spite of radio and newspaper publicity, they may start looking for dead cats in the shrubbery, dead rats in the walls, or move the garbage can around back of the garage, rather than call the gas company.

Careful study and "imagineering" must be applied to the selection of an odorant for newly introduced natural gas, says Mr. Lauderbaugh

One of these sidewalk perfume dispensers installed to attract attention to a store window display, but using the new odorant material, might be effective as an educational device when we start odorization in a new locality. Whether such spectacular devices are used or not, an educational campaign should be started just prior to the odorization.

While an odorant probably won't smell exactly like the previously distributed gas, engineers will agree that whatever it is, it should not fatigue the olfactory senses rapidly; that is to say, one's nose should not get so accustomed to the odor that it is no longer noticed. They will also agree that if it doesn't smell like your gas, it should be as distinctive as possible; that is, it should not smell like any other odor likely to be found on the property. As to whether or not the odor should be unpleasant, there will be some disagreement. Some experienced operators have said that as far as they were concerned, the odorant could smell like attar of roses or Grandmother's molasses cookies if it still had the odor after it had passed through one hundred miles of pipeline or after the gas had escaped through three feet of earth. That requirement presents us with the next variables.

There is general agreement among operators that the odorant should be so inert that it will withstand transmission over long distances without change in odorizing strength, and that the gas from underground leaks should remain odorized after passage through soil. Reports of the kind of odorant that performs satisfactorily in this place or that place, or the concentration required at the inlet of a system to have a perceptible odor at the extremities of the system, have for the

An address presented before the New England Gas Association Production Conference, Boston, January 16, 1952.

most part, only islands of agreement.

Most of the commercial odorants now available are sulfur compounds of one kind or another. The odor strength of these compounds, in ascending order, is: disulphides, thioethers, cyclic compounds, and mercaptans. Because they have the strongest odor, mercaptans in various combinations are favored materials for odorants, but mercaptans are readily oxidized in the presence of iron oxide to disulphides as shown in the 1949 report of J. S. Powell, assistant research engineer of The Southern California Gas Company. The theoretical percentage of oxygen required is infinitesimal, about .0004 percent of oxygen per grain of mercaptan sulfur per 100 cubic feet of gas. Powell suggests "that the completeness of the reaction depends upon the residence time of the gas in the system, and the catalytic activity of the iron oxide which is found on the walls of all pipelines." In some old natural gas systems, the contact between the gas stream and the many hundreds of pounds of various kinds of iron oxide dust in the transmission and distribution systems may have a greater effect on the persistence of the gas odorant, at least when the odorant material contains an appreciable percentage of mercaptans, than the black oxide mill scale on the pipe wall. Here then is a possible independent variable of the first water, that can well account for the wide variation in reports of long distance odorization.

No reports of the effect on odorants of the residue materials found in manufactured gas systems are known. It is a reasonable assumption that no two plants have the same residue in their pipelines. The other sulfur compounds previously mentioned are supposed to be more stable than the mercaptans, but if one-point odorization for a single area is contemplated a study should be made of the possible loss of odor intensity in the system.

Soil affects stability

The second part of the agreed stability factor for an odorant was that it should not be lost in passage through the soil. On the fact that all odorants suffer loss in passage through soil, there is probably more agreement than on any other phase of the problem. There have been several investigations of the dependent variables of that loss that indicate that the higher the molecular weight of the odorant, the more readily it is lost in passing through almost any soil. Since most of the odorant materials, satisfactory from other standpoints, have molecular weights of more than 80, we must expect them to be lost in passing through the soil. The kinds of soil around the pipeline will be independent variables.

The molecular weight theory makes sense to an operating man. Manufactured gas does not seem to lose much of the odor of the illuminants in passing through soil. Their average molecular weight is less than 40. They are good odorant materials, particularly when they are present to the extent of 1900 pounds per million cubic feet, or about three percent. In the case of "wet natural gas," the components providing the odor are probably the two to four percent of heavy hydrocarbons with an average molecular weight of about 50. "Wet" natural gas has an odor after passing through soil. The odorant materials are satisfactory, at least when they are present to the extent of 1400 pounds per million cubic feet, or three percent.

Those figures of 1900 pounds and 1400 pounds call attention to what gas plant operators are asking the odorant manufacturer to supply; i.e., some material that contains no sulfur, is cheap, safe, chemically stable and non-corrosive, one pound of which will produce as much stink in a million cubic feet of natural gas as 1900 pounds of illuminants.

With many operators, it is common practice to raise the odorant injection rate, sometimes as much as 15 to 1, for short periods of time and at regular intervals, for the purpose of checking for underground leaks. Under these conditions there will of course be a lot of calls to investigate a "gas" odor from leaks above ground, which are too small to be detected and stopped, but, at least with the present odorants, we can't have our cake and eat it too. This leads us quite naturally to the next variables.

Opinions differ as to when a gas has sufficient odor. The street superintendent wants enough odor to find the street leaks. The service superintendent does not want so much odor that his crew spends a lot of time hunting extremely small leaks on appliance manifolds. The industrial engineer insists that the total sulfur must be less than .5 gr. per hundred cubic feet or he is going to have trouble with the glass plants, potteries, and aluminum forging plants, and so the controversy goes.

The safety director will give the fundamental requirement, that without regard to any other operations of the company, the gas should have enough odor so that it would not be possible for enough gas to produce an explosive mixture, to leak into a house, without people in the house noticing the odor. An effort to specify a certain number of pounds of odorant material per million cubic feet to satisfy this statement comes face to face with the variables.

In this case the dependent variables are the odorant materials; some are more concentrated than others, and they have different olfactory fatigue characteristics. But there is a big independent variable, and that is the olfactory sense of the occupant of the house. Because of this condition, sensitive machines have been developed which can be used to measure the amount of odorant in a sample of the gas. A number of these machines are now in service, but the important question is, "Can the customer detect the odor?"

Limit number of stations

In addition the "where" and the "how" of odorization have their variables. The answer of where to odorize is usually much simpler for a manufactured gas system than for an old natural gas system. For example, a town in western Pennsylvania has two major and six minor sources of natural gas into the town. Planning odorization stations for that sort of situation can be difficult. On the other hand, a manufactured gas system, because it was built around a gas plant, can often have just one odorizing station.

There are almost no exceptions to the statement that the fewer stations you can have, and still have coverage, the lower the installation cost, the lower the operating cost, and the better the control. The variables will come about through the necessity to odorize for main line consumers, or an occasional request to operate at different odorant levels in two sections of a system.

There are still many possible answers to the question of how to odorize, though not as many as there were ten years ago. One of the more recent "how" publications has illustrations of 14 types of odorizing equipment. But 10 years ago there were probably as many odorizers as there were gas companies odorizing. The reduction probably resulted

(Continued on page 42)

PEOPLES GAS REPORTS ON GAS HEAT FOR CHICAGO USERS

New Texas Illinois Pipeline Completed

Here's how matters stand today:

1. **30,000 families from the waiting list are having or soon will have Gas Heat made available for their homes on a first-come, first-served basis.**
2. **Families who are lower on the waiting list cannot be promised Gas Heat in the near future.**
3. **The long-term outlook remains good for supplying Gas Heat to all Chicago families who want it.**

This report is published for the approximately 100,000 Chicago families who have already applied to Peoples Gas to have Gas Heat installed in their homes . . . and for the many thousands of other families who are thinking about applying for Gas Heat and taking their place on the first-come, first-served waiting list.

A similar report was published in December of 1950. Peoples Gas is happy that its continuing all-out efforts to increase Chicago's gas supply have improved the situation over a year ago.

New pipeline completed

In anticipation of completion at this time of a new 1400-mile high-pressure pipeline for delivering natural gas from the Gulf Coast of Texas to the Chicago region, Gas Heat was made available last summer to 10,000 families on the waiting list on a first-come, first-served basis.

Now Gas Heat is being offered to another 20,000 families on the waiting list also on a first-come, first-served basis. This is possible because the new pipeline has just gone into operation.

When these 30,000 additional families take advantage of the offer, Peoples Gas will be supplying almost 100,000 Chicago homes with Gas Heat. This is more than three times the total number of homes being served with Gas Heat in 1946 when the Illinois Commerce Commission, at the request of Peoples Gas, issued an order permitting limitation of attachment of Gas Heat for additional families.

The need for a waiting list

The Commission's order was necessary to protect continuity of service to more than 900,000 Peoples Gas customers using gas for cooking, water heating and refrigeration. Uncontrolled addition of new Gas Heat customers could have threatened regular gas service to hundreds of thousands of families during cold weather periods when demand for gas reaches its peak. A waiting list of families who desired Gas Heat for their homes resulted.

Providing Gas Heat for 30,000 additional homes will not eliminate the waiting list. Many thousands of families who have been on the list for many months must still remain there, although they will have moved much closer to the top.

And, of course, new thousands of families who are applying for Gas Heat each month will have to take places further down on the list.

As of January 1, 1952, it is expected that no family will have been on the waiting list for more than about one year's time.

Why the waiting list grows

There are good and logical reasons for the unprecedented demand for Gas Heat. Foremost is *price*.

Gas is today the cheapest fuel for home heating. During and since the war, prices of oil and coal have soared, while domestic gas rates have remained unchanged.

In addition, Gas Heat is in demand because it is both automatic and clean. These qualities make it the preferred fuel

What of the future?

Even the completion of a project as vast as the 1400-mile natural gas pipeline from the Texas Gulf Coast region cannot meet the steadily increasing demand for gas to heat Chicago homes.

The construction of *several* more similar lines could not solve the problem, supposing such a step were economically possible. Additional and other expensive pipelines would be needed to meet the peak demands of the coldest winter day. But such lines would also deliver a large supply of gas during the warmer months of the year which the domestic customers would not use. This would create a wasteful condition which would result in prohibitive costs for the public.

What, then, is the solution? What can be done to bring sufficient flexibility to the year-round supply so that enough is on hand for peak demand periods during the cold winter months without excessive cost to the public?

Our next step—underground storage

Engineering experts of subsidiary pipeline companies, together with leading independent geologists who have been hired by the companies, agree that the answer lies in seasonal storage of tremendous supplies of gas during periods of low demand in the spring, summer and fall months. These reserve supplies will then be available in winter to add to the regular daily flow of gas coming to the Chicago area through the pipelines.

They also agree that one possible way to achieve this goal is vast underground storage of gas in an area near the northern terminals of the present three pipelines at Joliet. Marked progress has been made in such a project. A porous sandstone layer in western Kankakee County, a third of a mile underground, is being tested for use as a storage "tank."

While tests now nearing completion are encouraging, much remains to be done to make the storage project a reality. Applications to regulatory bodies for approval to proceed with the actual developement are pending, the considerable expense of the project remains to be financed and necessary materials must be obtained. On the most optimistic basis, the storage area may be made use of on a limited basis late in 1953—and any one of a number of difficulties could result in delay

Until a large-scale seasonal storage area of this kind is an actuality, Peoples Gas cannot promise Gas Heat to more than the approximately 100,000 families to whom it will have been made available by early 1952. But if the storage area proves successful and is placed in full operation, Peoples Gas expects to be able to make Gas Heat available to all Chicago families who request it

Timetable of progress to date

July 1946 — total Gas Heat customers being served. (Additional installations thereafter controlled by limitation order.)	30,000
December 1950 — additional customers served since July 1946 as more gas has become available	39,000
December 1951 — third pipeline placed in operation. New customers now in course of installing Gas Heat or being offered service on a first-come, first-served basis.	30,000
Total Gas Heat customers who will be served by winter season of 1952-53	99,000

NOTE: *The waiting list grew to 90,000 between 1946 and December of 1950. After gas heating service is offered to additional customers because of the completion of the new pipeline it is believed that the waiting list will be approximately 65,000. New requests for Gas Heat are being received daily and it is expected that more than 100,000 will still be on the waiting list at the end of 1952.*

How Peoples Gas is improving Chicago's gas supply

Peoples Gas and its pipeline subsidiaries have been carrying on an extensive construction and research program to improve Chicago's supply of gas. The two principal projects are described below.

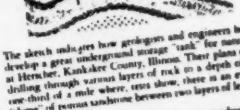
New 1400-mile pipeline

Here is a map showing, by the solid black line, the route of the 1400-mile natural gas pipeline from the Texas Gulf Coast fields to the Chicago area. This pipeline has just been put in operation.

The right-of-way through Texas, Arkansas, Missouri and Illinois crosses almost all types of difficult terrain and includes 24 major river crossings. During its construction, unprecedented rains and floods were encountered. But the work went on. The new line, costing approximately $145,000,000, was constructed and is being operated by Texas Illinois Natural Gas Pipeline Company, a Peoples Gas subsidiary.

Two other long-distance pipelines (shown in dotted lines on the map) extend more than 300 miles from the Texas Panhandle to the Chicago area. They are owned and operated by another Peoples Gas subsidiary, the Natural Gas Pipeline Company of America. Natural gas for the Chicago area was brought through the first of these lines in 1931. Final construction work on the second of these two lines was completed in 1948.

Engineers work on underground storage area



The sketch indicates how geologists and engineers hope to develop a great underground storage "tank" for natural gas at Herscher, Kankakee County, Illinois. Their plans call for drilling through various layers of rock to a depth of about one-third of a mile where, tests show, there is an extended "dome" of porous sandstone between two layers of leak-tight rock.

It is planned to pump natural gas into this sandstone layer, pushing back the salt water found there and making room for storage of great quantities of gas. The water would serve as a "seal" holding in the gas between layers of leak-tight rock.

If the storage area is successfully developed, billions of cubic feet of natural gas from the pipelines will be pumped into that storage space during the spring, summer and fall periods when demand by home heating customers is low, and be withdrawn during the winter months to help meet the high demands of the home heating customers of the entire companies served by the pipelines

The PEOPLES GAS LIGHT AND COKE COMPANY

Profit motif to keynote promotion

GAS COOKING OFFERS PROOF OF PROFITS

How to increase profits will be the story the gas industry will tell to the commercial cooking industry during the spring Proof of Profits Campaign.

At a recent meeting of Sales Promotion Subcommittee of the Food Service Equipment Committee, it was decided to launch the Proof of Profits Campaign this year. It will be a national campaign enlisting the concerted efforts of the entire gas industry in cooperation with manufacturers of commercial gas equipment and kitchen equipment dealers. E. V. Fineran is chairman of this subcommittee.

The 1952 Proof of Profits Campaign will be part of the long term A. G. A. program of planned activities to sell commercial gas cooking equipment. This year's campaign is to be a concerted, coordinated effort by gas companies, dealers and manufacturers to stimulate the sale of modern gas equipment to replace old commercial cooking equipment.

The schedule for the campaign will be as follows:

February 15—A. G. A. announces over-all plans and local campaign helps to member companies.

March—A. G. A. ads start in national trade papers. *Flame Facts* tells dealers about campaign.

April and May—Manufacturers' ads appear in national trade papers.

June—Long term A. G. A. program starts.

Any, or all, of the ideas and material offered for this Proof of Profits Campaign can be used, and at any time during the year that is felt to be most desirable for any particular territory. An individual program can run all the way from a stepped-up advertising campaign to one that will go all out in giving cash inducements to salesmen, trade-in allowances and liberal finance plans.

The company that promotes this campaign thoroughly can gain:

1. increased commercial load; 2. insurance against competitive attack through installation of modern gas equipment; 3. better trained and experienced commercial men; and 4. better trained and experienced dealer salesmen.

The manufacturers and dealers, of course, profit by increased sales of equipment and the customers benefit by the use of more modern equipment which is more economical and satisfactory to operate.

Campaign Plans

A portfolio containing complete information on "What To Do" and "What To Get" to conduct the "Proof of Profits" Campaign will be mailed to all member companies.

There is no better way to institute the program than with a gas company-sponsored meeting of dealers, their salesmen, gas company commercial men and service men, and representatives of gas equipment manufacturers. One of the top executives in the gas company should address the group and the details of the campaign should be presented. The dealers and their men should be assured that this meeting is going to be of interest to them by telling them in advance that they will find out how they can make more money, that food and beverage will be served, and, possibly, door prizes will be given.

Where it is not possible to have a get-together of all dealer salesmen at one time, an alternate plan is to have a meeting in each dealer's place of business. And where a gas company has a large territory, a series of meetings may be necessary at appropriate locations.

Decide which method of announcing the program serves your company's needs and set up the dates now.

The best way to capture the dealer's interest is to furnish him with prospects. The best source of prospects is a survey of the cooking equipment in all the food service establishments. This survey is suggested as a highly important pre-campaign requirement. If it has not already been done, any company contemplating a campaign should get busy on a survey at once. Some companies have their own survey forms and keep up-to-date records. Surveys will furnish locations of obsolete or worn out equipment as particularly good prospects. The gas company representatives should ask these

(Continued on next page)

CHICAGO USERS WERE KEPT POSTED. Working on the premise that potential house heating customers deserved to be told exactly what progress was being made toward bringing in natural gas, The Peoples Gas Light and Coke Company gave the information in full page newspaper advertisements. Public reaction to the program was excellent

GAS INDUSTRY ACHIEVEMENT AWARDS FOR 1952

● The outstanding contributions of individuals and companies to the advancement of various branches of the gas industry during 1951 will again be honored by A. G. A. awards. Deadlines for mailing of entries range from July 31 to September 1, 1952.

A.G.A. DISTINGUISHED SERVICE AWARD

Presented to the individual who has made the most outstanding contribution toward the advancement of the gas industry.

The award consists of an engraved certificate and a substantial sum of money.

Applications must be postmarked not later than August 1, 1952.

A.G.A. MERITORIOUS SERVICE AWARD

Made in recognition of heroic action in the saving of life or property, in the plant or works of any gas undertaking or connected with the handling or distribution of the products of the industry, during the period July 1, 1951 to June 30, 1952. The winner must have shown conspicuous judgment, intelligence or bravery in his heroic act.

The award consists of a gold medal, button and certificate.

Entries must be prepared on a form provided by A. G. A. and be postmarked not later than August 1, 1952.

BEAL MEDAL

This highest technical recognition in the industry is awarded to the sole author of the best technical paper presented at a meeting of the Association or printed during the Association year.

The award includes a bronze medal and a sum of money.

A.G.A. HOME SERVICE ACHIEVEMENT AWARD

Outstanding advancement of modern homemaking through promotion of interest in and better use of gas and modern gas equipment in the home, is recognized by the multiple award by McCall's *Magazine to directors of home service departments. There are three divisions: 1. Those companies with home service departments with personnel totaling more than three individuals; 2. Those companies with one, but not more than three individuals; and 3. Three awards to individual members or a department head in the home service department of three different companies whose individual ideas make the greatest contribution to advancement of modern homemaking through the use of modern gas equipment.*

Each award consists of a bronze plaque and a sum of money.

Entries are to be postmarked not later than July 31, 1952.

A.G.A. GAS HEATING PROGRESS AWARD

The five individual members of the gas utility industry who made the greatest contribution to the advance of gas heating, between September 1, 1951 and August 31, 1952 are honored by this award, introduced and sponsored by Coroaire Heater Corp., Cleveland, Ohio.

These awards range from $500 to $50 and total $1,000.

Entries must be postmarked not later than September 1, 1952.

A.G.A. PROGRESS AWARD IN GAS SUMMER AIR CONDITIONING

All member gas companies are eligible to compete on the basis of sales promotion, advertising and research developments of summer air conditioning. Servel, Inc., Evansville, Ind., sponsors this achievement award.

The award comprises a progress trophy, substantial cash payments and miniature trophies for individuals.

Entries must be postmarked not later than August 1, 1952.

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establishments who their dealer is and furnish him with the customer's name as a good prospect. If an establishment needing equipment has no regular dealer, his name could be given to a number of dealers.

One of the features of the Proof of Profits Campaign will be the availability of direct mail materials. Appropriate mailing pieces should be sent to commercial cooking customers from the gas companies and/or the dealer. This could be the first step in the campaign to sell the consumers. Then the dealer salesmen and the gas company commercial representative should follow up prospects developed from equipment surveys, employee leads, or other sources.

Making the campaign profitable to the dealer salesman is the best way to get and hold his interest. Commissions on sales of commercial gas equipment can be a substantial addition to his income. It can be pointed out that the commission on the sale of a gas range, gas fryer, or other gas appliances, would be bigger than the commission he got on his largest sale of china or glass.

The dealer salesman will be eager to jump on the bandwagon, if he is given an extra inducement in the way of a prize or a bonus. Any gas company that decides to do this will find that it is money well spent. Equipment could be classified in accordance with its value as a load builder and the ease with which it can be sold. A bonus then could be offered in each category according to its value.

One of the most important phases of the Proof of Profits Campaign is to get gas company personnel interested.

Get everybody into the act. The man responsible for the campaign should bring the details of the compaign to all company personnel. A prize should be offered to gas company employees who turn in leads that result in the sale of equipment. Service men should be particularly indoctrinated into the campaign. Bonuses or prizes could be set up according to the same category as suggested for dealer salesmen.

Get the customer interested. He's the one that has to buy the equipment and use it. Every move made by the gas company, manufacturer and dealer is directed toward the customer. All this campaign needs is customers and in many cases some sort of an inducement must be made to him.

A trade-in allowance on old equipment during a certain period can influence a prospect to buy during that time. For example, five percent of the selling price may be offered on equipment that replaces old gas equipment and a 10 percent allowance for replacing competitive equipment. The gas company should

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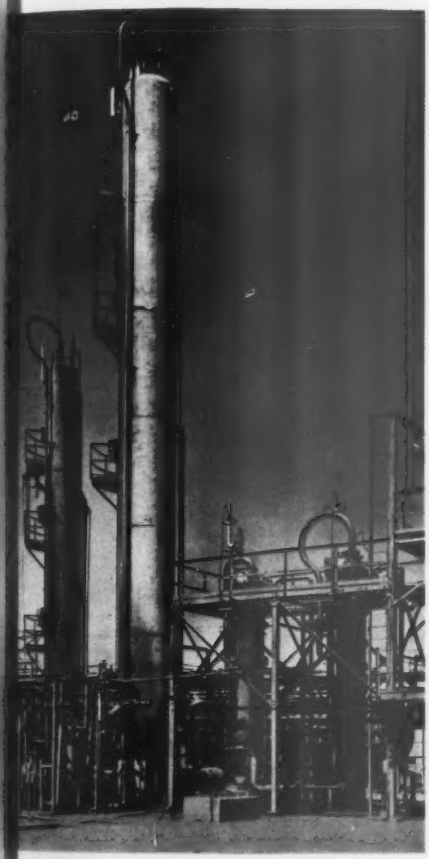
LP-gas sales rise



Chemical and chemical intermediates are manufactured from LP-gas hydrocarbons in petrochemical plants such as this typical one

The LP-gas industry, a major supplier of energy in the U.S., continued its spiralling growth as 1951 sales reached an estimated 4.4 billion gallons according to estimates released by George R. Benz and K. W. Rugh of Phillips Petroleum Co., Bartlesville, Oklahoma. This represents a gain of 27.6 percent over sales during 1950.

Household and farm use, including direct motor fuel use, accounted for estimated sales of 2.9 billion gallons, distributed by 4,500 LP-gas bulk plants located throughout the country. Although no reliable estimate of the number of residential and farm users of LP-gas will be available until after completion of the tabulations from the 1950 Census of Housing, the number of such users is generally assumed to be between five and six million although a preliminary sample tabulation from the Census indicated only 3.5 million such residences. Previously reported trends toward bulk distribution of LP-gas and direct motor fuel use continued. In addition to greatly expanded use in farm tractors, LP-gas now fuels over one thousand buses and countless other heavy duty internal combustion engines. There are excellent prospects for far greater growth in this field.

LP-gas sales to industries and utilities are estimated at 230 million and 252 million gallons respectively. Both markets showed below average growth principally because of the extension of natural gas lines during the year. Since the long term effect of natural gas availability is to increase LP-gas demand for standby purposes, future increases in these markets can be expected.

The petrochemical industry remains the second largest market for LP-gas. The manufacture of chemicals and chemical intermediates required an estimated 750 million gallons. This does not include the use of LP-gas for the manufacture of synthetic rubber components which required 344 million gallons.

The year's progress indicates a continuing increased demand for LP-gas comparable to that experienced in the past. There are indications that production will have difficulty in keeping pace with the demand during peak winter months. This unbalanced supply versus demand condition is influencing larger storage at all stages of the distribution channels. The results of this influence can make it possible for the industry to balance its demand and supply in a reasonable period of time.

During 1951, an estimated 470,000 ranges were produced specificially for use with LP-gas. An additional large volume of ranges produced for other gases were adaptable with only minor changes to LP-gas, and undoubtedly many were connected to LP-gas installations. Approximately 260 thousand of the automatic gas water heaters manufactured in 1951 were for LP-gas. The trend toward bulk distribution of LP-gas continued to gain momentum during the year. Since the major load in bulk distribution is for house heating, it is significant to note that an estimated 19 percent of the gas-fired floor and wall furnaces produced in 1951 were made for LP-gas. Appliance sales during 1951 would not, of course, reflect the buying boom of July and August of 1950 caused by the outbreak of hostilities in Korea.

Use of the product by trucks, buses and taxi fleets also showed large gains during the year. Well over one thousand city and intercity buses using LP-gas have been put in operation in the last eighteen months. Several major manufacturers of heavy duty engines are contemplating the production of factory engineered and produced LP-gas burning engines. For many such manufacturers, work on this project is well beyond the research and development stage and road testing is in full swing.

Sales of LP-gas to utilities are estimated at 252 million gallons in 1951, the same as 1950. Extension of natural gas lines to new locations and additional supplies of natural gas to areas where it was already available continued during the year. The long term effect of such activities is to increase the potential LP-gas use by utilities for standby purposes. The short term effect, however, is to reduce actual LP-gas demand and these short term effects were felt by the LP-gas industry in 1951. The extreme shortage of LP-gas transportation during the early months of 1951 also reduced LP-gas sales to utilities in that period, as the industry was unable to supply the spot demand for standby purposes. This tight winter situation emphasized the important point that, for standby use, utilities must have ample LP-gas storage facilities—and the storage must be filled during the spring and summer months. As the long term effects of increased demand on natural gas systems are felt, increased sales of LP-gas to utilities for augmenting supply can be expected.

(Continued on page 41)

Everybody cooked with gas at the "cook-off" contest, of which Brooklyn Union Gas Co. and Caloric Stove Corp. were among the co-sponsors. The latter furnished the "CP" ranges, the former installed them

Contest spotlights gas cookery

Twenty-four amateur chefs were "cookin' on all four burners" at the Brooklyn Academy of Music on January 23, when a fashion designer, a secretary, a columnist, a professional pianist, a social worker, a singer, several housewives and one lone fireman met as finalists in a cooking contest staged by Flotill Products, Inc., food processing manufacturer. The Brooklyn Union Gas Co., Caloric Stove Corp., and Namm's, a local department store, cooperated to make the cook-off a huge success. The contest audience was over 3,000 while hundreds were disappointed at the door.

On the day of the contest, the stage was a gleaming display of 24 automatic Caloric "CP" gas ranges. However, the calm efficiency of the cooks belied the preparations that had taken place just a few hours before. And it was only because of this last-minute scurry by Brooklyn Union that the cook-off was possible.

The local utility's part was strictly behind the scenes, but as is always the case with back-stage work, extremely important. Because the academy had no gas connection at all, the utility's customer service department performed the phenomenal task of laying 275 feet of two-inch pipe in less than one day. Speed was one of the most important elements, for the academy is in demand every day. The pipe had to be specially measured, cut and ready for laying before it was brought to the scene. A special meter for the one-day performance was installed to measure the amount of gas used by the 24 gas ranges and four gas refrigerators, also supplied by Brooklyn Union. Ovens had to be calibrated, burners put into working condition, pilots lit, over 250 separate adjustments made.

The utility also cooperated by publicizing the contest on its TV show, "Tex and Jinx," while home service, under the direction of Ruth Soule took charge of all preliminary food preparation. Ingredients were ordered, measured and set out for each amateur chef. Pots and pans, spoons and measuring cups, water, salt and a million trivialities—not to mention moral support for nervous cooks—were supplied without a hitch.

Rules were simple. Each contestant was an outstanding cook, selected as a winner of a daily prize in a radio contest conducted by Carlton Fredericks, nutrition expert who broadcasts over station WMGM to listeners in New Jersey, New York and Connecticut. The recipes had to include Flotill tomato paste, and were judged for appetite appeal, ease of preparation, economy and originality. Judges were Carlton Fredericks, Toots Shor, restaurateur, and Jane Tiffany Wagner, GAMA home economist. The awards committee included television star Milton Berle and Tillie Lewis, president of Flotill Products, Inc.

And the prizes were worth competing for! First prize was a $1,000 U. S. Savings Bond. Second prize, won by a Bronx fireman, the only stag contestant, was a Caloric "CP" automatic gas range. The third was a year's supply of Flotill canned fruits and vegetables.

But the biggest prize of all went to Brooklyn Union—awarded for conscientious effort and good salesmanship. The prize is the satisfaction of knowing that in cooking circles from southern Jersey to northern Connecticut, the slogan is "Smart Cooks Know—Gas Has Got It!"

Jack Frost of Brooklyn Union Gas Company's new business department greets the audience

Jim Ruch and Larry Voigtsberger of Caloric Stove Corp. check an automatic "CP" gas range furnished by that firm for the "cook-off"

Improvement of utility financial and accounting methods will be major section committee projects during 1952

Accountants map broad program

RALPH F. McGLONE, *CHAIRMAN* · BERNARD S. RODEY, Jr., *VICE-CHAIRMAN*

The program of the Accounting Section is necessarily broad and authoritative to meet the needs of the high-level utility executives who constitute its membership. Among these are approximately 1,500 company representatives. About three hundred of these—vice-presidents, controllers, treasurers, secretaries, general commercial managers, superintendents and other key accounting and financial personnel—are serving on various A. G. A. committees. In their home organizations they are responsible in varying degrees for budgetary control, commercial relations, customers accounts, credit and collections and cash and cash transactions. They also exercise authority over financial and operating statistics, rates and rate analysis, plant accounting, continuing property records and depreciation studies and determinations. In addition their responsibility includes payrolls and employee compensation, transportation costs and records, taxes, purchasing and storerooms, and insurance. Within their fields also come internal auditing, capital stock transfers, work order systems, original cost studies and indirect construction costs. There are also operating expenses, general books and records, preservation and destruction of records and accounts payable routines.

The personnel of the Accounting Section must coordinate its activities with similar committees of the Edison Electric Institute. This arrangement was worked out about 15 years ago to eliminate duplication in the representation from combination gas and electric companies and also because, in accounting matters, there was added strength in the broader exchange of accounting, financial and economic information. The corresponding accounting membership in the institute comprises about 700 key representatives, 325 of whom are actively engaged in working committees.

Accounting Section activities are broken down among 10 standing committees including its Managing Committee. The Managing Committee is serviced by the Nominating, Editorial and Advisory committees. The latter is comprised of the five immediately past section chairmen. Each standing committee consists of about 40 company representatives. This gives each committee activity an adequately wide company representation and strengthens the work of the Accounting Section.

The standing committees of the Accounting Section are divided into the General Activities Group and the Customer Activities Group. The coordinators who direct these groups are members of the Managing Committee and report directly to its chairman.

Managing Committee plans

The titles of the 65 members of the Managing Committee are indicative of the diversity of functional interests represented. Among them are six vice-presidents, four vice-presidents and controllers, six controllers, three vice-presidents and treasurers, and two vice-presidents and secretaries. There are also six general managers and managers, one treasurer, one general auditor, and five secretaries. In addition the membership includes two superintendents, one personnel director, eleven coordinators and chairmen of the standing committees and 17 affiliated associations representing various geographic sections of the United States and Canada.

The 1952 Managing Committee is headed by Ralph F. McGlone as chairman and also sectional vice-president. In the latter capacity he is a member of the Board of Directors of the Association and reports directly to them concerning the policies and welfare of the section. Mr. McGlone is commercial manager, The East Ohio Gas Co., Cleveland. Section vice-chairman Bernard S. Rodey, Jr., is manager of the tax department and assistant secretary, Consolidated Edison Co. of New York, Inc.

The continuity of the section's activities is maintained, and the officers of the Managing Committee are assisted, by a headquarters staff headed by Thomas J. Shanley.

Section Chairman Ralph F. McGlone entered the employ of The East Ohio Gas Co., Cleveland, in 1924 as customer bookkeeper. He has since served successively as department supervisor, assistant department head, department head, field accounting supervisor, assistant commercial manager and is at present commercial manager. He is actively interested in the A. G. A. Accounting Section, has served on the Customers Accounting Committee, and has been Coordinator of Customer Activities and a member of the Managing Committee. Mr. McGlone is a past chairman of the Compendium Committee, an activity he initiated because of his interest in the past accomplishments and research of the Accounting Section.

Bernard S. Rodey, Jr., vice-chairman of the Accounting Section, has been associated with Consolidated Edison Co. of N. Y., Inc. for 31 years as plant records engineer, auditor, associate controller, assistant secretary, and manager of tax department. In 1913 he enlisted in the U. S. Navy and served in all electrical ratings to Lieutenant Commander Supply Corps. He was construction foreman in 1910 with the Porto Rican Railroad Light & Transit Company. Mr. Rodey is a past chairman, Executive Committee, Edison Electric Institute and a past president of New York City Control of Controllers Institute of America. He is a certified public accountant, a licensed professional engineer and attorney and counsellor at law, State of New York, and co-au-

thor, *Public Utility Accounting*, Prentice-Hall, Inc., New York, N. Y.

The Managing Committee, in connection with supervising all of the work of the Accounting Section, establishes special subcommittees for investigation and reports on matters that are of special interest to the industry but which may not fall within the scope of any of the standing committees. In general, it tries not to duplicate or overlap the particular specialized technical fields embraced by the scope of the various standing committees.

The subcommittees which will be most active this year are:

Current Developments in the Application of Electronics to Accounting Operations and Machine Developments—Chairman, John H. W. Roper, supervisor of customer accounts, Washington (D. C.) Gas Light Company. This committee was organized early in 1951 to keep abreast of the developments in electronics in their application to all fields of financial and accounting operations. Such developments are in their initial stages and the close follow-up of this matter will continue for some time to come. The committee held its first meeting in October and met with representatives of the two leading manufacturers of electronic accounting machines. Subsequent meetings will include conferences with other manufacturers of similar equipment. Reports will be forthcoming, for the interest and benefit of the industry.

Work Simplification—Chairman, J. F. Rooney, general commercial manager, Consolidated Edison Co. of N. Y., Inc. The initial study by this subcommittee included an investigation and report of the various statistical and accounting methods in use for managerial control. It also analyzed recent measures taken by various companies to effectuate cost control or develop cost consciousness. The committee is expected to direct its current efforts largely to work simplification techniques. Actual studies undertaken will probably be assigned to one of the technical committees.

Proposed Changes in the Uniform System of Accounts—Chairman, Arthur Skelton, general superintendent, The Peoples Gas Light & Coke Co., Chicago, Illinois. The Committee on Statistics and Accounts of the NARUC is presently engaged in revising the electric system of accounts. Such revision would be immediately followed by a corresponding change in the gas system of accounts. Hence it is necessary for the A.G.A. committee to work closely with the EEI committee to obtain the timely benefit of our views in respect of changes being proposed that are common to both the electric and gas systems of accounts. Our chairman, therefore, works cooperatively with the committee of the Edison Electric Institute.

A report of this work was made in the previous issue of the MONTHLY.

Accounting Developments Service—Chairman, J. C. Messer, methods superintendent, The Peoples Gas Light & Coke Co., Chicago, and L. M. LaPorte, controller, Wisconsin Electric Power Co., Milwaukee. The continuing function of this joint association service is to review all suggestions received. From these it selects descriptions about new equipment, improved methods, labor saving ideas, short cuts, better control procedures, novel operations and work simplification which will make public utility accounting work more effective and economical. Arrangements are made for these descriptions to be distributed to member companies.

Compendium—Chairman, L. R. Michelsen, general storekeeper, The Peoples Gas Light & Coke Co., Chicago. This committee indexes the great fund of valuable research and reports completed during the past years of the Accounting Section activities.

Ralph F. McGlone
Chairman
Accounting Section

Bernard S. Rodey, Jr.
Vice-Chairman
Accounting Section

J. T. McKay
Chairman, Customer
Accounting Committee

J. Gordon Ross
Chairman, Customer
Activities Group

D. E. Barr
Chairman, Customer
Relations Committee

L. J. Rauh
Chairman, Customer
Collections Committee

Award of Merit Plan—Chairman, H. E. Cliff, Public Service Electric & Gas Co., Newark, New Jersey. The Managing Committee at its last meeting appointed a three-man committee to study the setting up of an Award of Merit Plan for the Accounting Section similar to the Industrial and Commercial Section Hall of Flame. The general idea of the plan will be to give merited recognition for long, faithful, and outstanding service.

Customer Activities Group

The Customer Activities Group consists of three standing committees under the supervision of J. Gordon Ross, coordinator, Rochester (N. Y.) Gas & Electric Corporation.

Mr. Ross has been with the Rochester Gas and Electric Corporation since 1920. Starting

as a clerk, he was promoted to superintendent of the customer service department in 1922 and became manager of customer service and relations in 1945. In the 1930's when the credit department was a part of Mr. Ross's responsibility, he was active in local credit associations, and served as president of the Rochester Retail Credit Association. He was the first public utility man to be elected a director of the National Retail Credit Association. In 1937, he was elected president of the National Retail Credit Association. He has been an active committee member of both the A. G. A. and EEI for many years.

The Customer Activities Committees and their programs follow:

Customer Accounting Committee—Chairman, J. T. McKay, New Orleans Public Service, Inc. This committee plans to present a two-part paper on "Improved Meter Reading Efficiency," which will include (1) handling of missed readings, and (2) progression plans for meter readers. Another long-range project is the one on a Directory of Customer Accounting Methods. The directory will be issued to member companies when completed, possibly late in 1952. A subcommittee on Preservation and Destruction of Records will be continued, pending any new developments on this subject. Final reports on Centralized vs. Decentralized Billing and Accounting and Operations Involved in the Handling of Cash will be presented at the spring conference in 1952.

A project subcommittee will undertake a further study on How to Meet the Manpower Shortage and submit their report at the 1952 Spring Conference. This subject will continue as a long-range project. A number of the members of this committee will participate in a panel discussion on "How Many Customer Files?" at the same conference.

Two new long-range projects are to be developed. Customer Accounting Methods and Equipment will include the study of machine billing and accounting systems used in the industry, with emphasis on installations of recently developed equipment. The other on Filing Equipment and Methods will be a study and report on types of filing equipment presently in use or available from manufacturers for the storage of customer accounting records.

Customer Accounting Committee Chairman Joseph T. McKay began his career with New Orleans Gas Light Company. During his many years in the utility field, he has served in both the General and the Commercial Accounting Section. At present he is assistant general auditor in charge of customers' accounting department, New Orleans Public Service Inc., New Orleans.

Customer Collections Committee—Chairman, L. J. Rauh, Consolidated Gas Electric Light & Power Co. of Baltimore. The projects of this committee carried over from last year include, Better Collection Letters and Authorized Pay Station Practices, of which final reports are forthcoming. Also carried over are Collection Treatment of Final Accounts with an interim report to be rendered, and More Effective Follow-Up on Final Accounts. Plan is to present three of these projects at the spring conference. An additional long-range project Should Collectors be Added to Reduce the Uncollectible Loss? was considered and will be developed. Short-range projects for study include: Past Due Accounts; Positive vs. Negative, vs. No History File; and Trends with Regard to Discount Practices. A subcommittee has been appointed to study structure of the "Credit Picture" which is published semi-annually in the A.G.A. MONTHLY. For the spring conference, the committee will reopen and develop in greater detail The Determination of Collection Policy. This committee will also cooperate in presenting the subject of How Many Customer Files?

L. J. Rauh, chairman, Customer Collections Committee began his career with Consolidated Gas Electric Light and Power Co. of Baltimore at the age of 15. After completing his schooling at night, he became a certified public accountant of Maryland in 1933. Later he joined the company's newly created statistical department and left there in 1939 as assistant to the supervisor to join the staff of the customers' accounts department embracing billing, customer accounting, meter reading, credit and collections, customer contacts and related operations. He is now assistant manager of this division. Mr. Rauh has been very active for some years in the work of the several committees in the A. G. A. Customer Activities group.

Customer Relations Committee—Chairman, D. E. Barr, The Ohio Fuel Gas Co., Toledo. This committee is active in matters of accounting related to establishing and maintaining favorable customer relations including Accuracy in Billing, Accounting for Customers' Payments, and Continuous Contact with Customers. It is studying various means of improving and maintaining good cus-

(Continued on page 44)

W. D. Sweetman
dinator, General
Activities Group

Neander W. Wade
Chairman, Accounting
Employee Relations

E. R. Mellon
Chairman, Internal
Auditing Committee

F. H. Crissman
Chairman, General
Accounting Committee

R. L. Groves
Chairman, Materials
and Supplies
Committee

Burton P. Smith, Jr.
Chairman, Taxation
Accounting Committee

J. F. Preish
Chairman, Property
Records Committee

RONALD A. MALONY, *CHAIRMAN* • TERRY HART, *VICE-CHAIRMAN*

Plans for boosting the industrial and commercial gas load include a wide variety of activities throughout the year

Section announces '52 plans

Three events of major interest to section members of the Industrial and Commercial Gas Section, American Gas Association, will take place in April and May. First will be the 1952 A.G.A. Sales Conference on Industrial and Commercial Gas, Netherland Plaza Hotel, Cincinnati, April 16 to 18. Wednesday the 16th will be Industrial Gas Day, a General Session will be held on the 17th, and the 18th will be devoted to commercial gas.

The section sales conference has always been a major attraction for gas company executives, sales executives, industrial gas engineers, commercial representatives and manufacturers' sales executives. The Programs and Papers Committee, under the chairmanship of Ralph S. Wenner, has geared the conference to this level.

Among the suggested subjects for presentation at the General Session are: "The Value of Industrial and Commercial Sales;" "Using Industry To Sell Industrial and Commercial Gas to Regulatory Groups and Utility Management;" "Educating Tomorrow's Customers;" and "What Kind of People Can Sell Now." Gas industry leaders and qualified spokesmen outside of the gas industry have been invited to participate.

On Industrial Gas Day, timely subjects related to this phase of the industry will be presented. The committee plans to invite speakers who will discuss the use of gas in the chemical industry; the improvement of load factors; high speed heating; industrial fuel engineering as a profession; and the place of industrial gas in the rearmament program.

A member of the staff of a large hotel chain will address the delegates on Commercial Gas Day to tell them "What a Hotel Man Expects from the Gas Industry." The commercial cooking competitive picture, service and small commercial gas applications will be discussed that day.

An advance program will be printed shortly and mailed to all section members, together with hotel registration information and other pertinent matter. The one social function of the conference will be a dinner on Thursday evening.

Dual attraction in Chicago

Two activities for commercial gas men will take place concurrently in Chicago during the week of May 5 to 9. One is the National Restaurant Exposition on the Navy Pier. There the section will sponsor a Combined Commercial Cooking Exhibit that will span the pier from wall to wall. It will be practically impossible to see any of the restaurant show without passing through this, the largest gas exhibit yet arranged by A.G.A.

The other event during that same week will be the A.G.A. Commercial Gas School at the Edgewater Beach Hotel. Sessions are being held during Restaurant Show Week to give the students an opportunity to become acquainted with the variety of equipment available by visiting the show as part of their class work. The Sales Training Committee, under the chairmanship of L. E. Biemiller, has outlined a comprehensive course of study that will give newcomers to commercial gas a background for successful selling and promotion, while offering old timers a refresher course.

The course will cover description and operation of all types of gas cooking equipment. Consideration will be given some miscellaneous applications other than cooking that come within the province of the commercial gas representative. All the lectures will be definitely sales slanted.

Two demonstrations interspersed with the lectures will change the pace from straight study sessions. After being briefed on what to look for at the restaurant show, the entire student body will spend an afternoon there. This is the most comprehensive Commercial Gas School ever sponsored by the section. Commercial salesmen who attend will be better qualified for their daily contact with customers and prospects.

Section committee plans

Of equal importance is the work of the standing committees and their newly appointed members. They form the backbone of the Industrial and Commercial Gas Section. Here the details of progress in industrial and commercial gas are worked out and the benefits of their investigations and deliberations are made available to the gas industry at large. Organizational meetings of these committees were held before the close of last year in order that they might devote the entire year 1952 to their assignments.

The Metals Committee, under the chairmanship of Stanton T. Olinger, plans to issue three Information Letters. One is to be on iron and steel melting in quantities under ten thousand pounds. Another will be on the important and much discussed subject of brass melting, while a third will cover aluminum melting. The combination of these three Information Letters will comprise a valuable reference work on the use of gas for all metal melting.

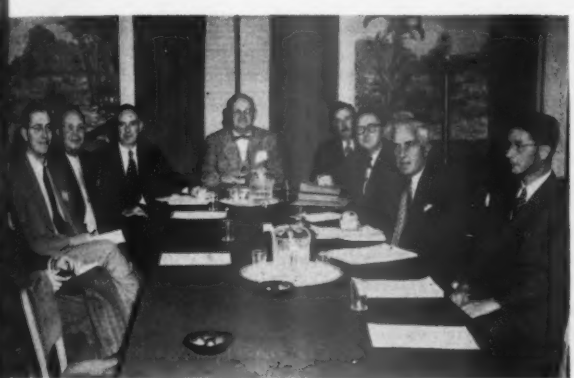
The Industrial Processing Committee, of which Everett V. K. Schutt is chairman, has proposed an ambitious program for the year. Several subcommittees have been appointed to implement the various subjects selected for study. They include: Textile and Paper Processing; Food Processing; Ceramics and Glass; Industrial Drying; and Chemical Processing. These groups will report on new tech-

(Continued on page 41)

Present during the meeting of the A. G. A. Industrial Processing Committee, Hotel Statler, Detroit, October 19, were, l. to r., standing: C. L. Nelson, Rockford, Ill.; L. R. Foote, Yonkers, N. Y.; E. S. Mack, Chicago; L. C. Kimpal, Rochester, N. Y.; S. R. Van Kampan, New York; E. J. Funk, Jr., Baltimore; W. S. Sims, Philadelphia; Samuel E. Tappan, Boston; Herman Gehnrich, Woodside, N. Y.; E. Gilbert Silven, Providence, R. I.; M. A. Combs, A. G. A.; Carl Wierum, Brooklyn, N. Y.; Alvin Stock, New York; R. L. Lang, Zanesville, Ohio; and H. R. Shailer, Jr., Waterbury, Conn. Seated: E. V. K. Schutt, committee chairman, Newburgh, N. Y.; Christopher G. Hobson, Pittsburgh; Robert LeMay, Philadelphia; and Harley K. Burns, Kansas City, Kansas. This committee will investigate such specialized applications outside the metalworking field as ceramics and textiles

The organization meeting of the A. G. A. Commercial Processing Committee, Hotel Roosevelt, New York, November 8, 1951, was attended by, clockwise from the left: Harmon Boyes, Hamilton, Ontario, Canada; George Marble, Detroit; M. F. French, Trenton; C. K. Vernon, Elizabeth, N. J.; John Black, chairman, Allentown, Pa.; D. M. Barrett, Washington; J. J. McGowan, Pittsburgh; C. L. Gillum, Dayton, Ohio; and A. V. Leudemann, Forest Hills, New York. Commercial gas projects other than large volume cooking, such as commercial incineration, will be reported on

Pictured during the Food Service Equipment Committee meeting, Hotel Roosevelt, New York, November 8, 1951, were, front row, left to right: W. S. Anderson, Boston; A. M. Bornhofen, Northbrook, Ill.; M. H. Douglas, New York; Paul Inskeep, Detroit; R. T. McCrum, Pittsburgh. Second row: M. A. Combs, A. G. A.; Paul Grimes, New York; C. C. Hanthorn, Philadelphia; H. S. Walter, A. G. A.; T. B. Madole, St. Louis. Third row: Chairman R. S. Chapman, Atlanta; J. T. Heilig, Newark, N. J.; B. E. Twigg, Indianapolis; J. V. Hall, Hammond; J. J. Condon, Chicago; F. J. Peterson, Bridgeport, Conn.; W. E. Green, Detroit; R. E. Regen, Long Island City, N. Y.; E. J. Mayland, Madison, Wis.; D. E. Dillon, Brooklyn, N. Y.; G. A. Seale, New York. Standing: J. K. Rainey, New Bedford, Mass.; R. G. Juergens, Cleveland; E. H. Lerch, Rochester, N. Y.; F. L. Firor, Orange, N. J.; J. C. Dorsey, Cleveland; and E. V. Fineran, Washington



The Metals Committee of the A. G. A. Industrial and Commercial Section met October 19, 1951, at the Hotel Statler, Detroit. Present at the meeting were: left to right: A. D. Wilcox, Rockford, Ill.; F. C. Schaefer, Elizabeth, N. J.; A. H. Koch, Toledo; Ralph L. Melany, Pittsburgh; S. T. Olinger, chairman, Cincinnati; R. E. Crane, Elizabeth, N. J.; A. M. Thurston, Cleveland; Stewart C. Parker, Chicago; and K. I. Robinson, Newark, New Jersey

The Programs and Papers Committee held a meeting at Headquarters to discuss the program for the coming A. G. A. 1952 Sales Conference on Industrial and Commercial Gas. Reading clockwise around the table appear: R. C. LeMay and F. T. Brooks, Philadelphia; L. R. Foote, Yonkers, N. Y.; R. L. French, Chatham, Ontario, Canada; J. R. Delaney, Cincinnati; R. S. Wenner, committee chairman, Columbus, Ohio; M. A. Combs, A. G. A.; W. S. Anderson, Boston; H. A. Clark, Detroit; B. H. Roberts, Minneapolis

Rising costs and scarce materials expand the role of the corrosion engineer in pipeline planning

Target for corrosion engineers

By IRVING K. PECK

Vice-president
Columbia Gas System Service Corp.

What does management expect of the corrosion engineer?

Twenty-five years ago, apparently only a few gas companies expected anything at all of the corrosion engineer. At any rate, only a few companies had any engineers doing corrosion prevention work, and these they usually called electrolysis engineers.

At that time, management was satisfied if these engineers could devise the ways and means of keeping gas lines in the immediate vicinity of sub-stations of electrical railway systems from having to be replaced every few months. Very seldom were they consulted in connection with any new construction, unless perhaps it was the construction of a replacement for a line that had gone bad in only a few years. Even then, their service to management consisted largely of inspection and certification of the mechanical operation of applying some sort of coating to the replacement line, with the hope that the coating would keep this new line from developing an abnormal number of pit-hole leaks during the first 10 years it was in service.

The reasons for this condition some years ago are rather obvious. First of all, there was no PAD-26 form to be approved before you would get in the production schedule at a pipe mill. If you needed pipe in a hurry, the purchasing agent phoned the order to the mill, and the pipe was on the way. Second, pipe cost only $50 per ton, and an 8-inch cross country line could be constructed for not over $8,000 per mile. At such cost, it was not economical to spend very much money on corrosion prevention. Actually in some cases, it was cheaper to let the lines corrode, and then replace them.

There have been many changes in utility plant operation since the early 1930's. During the year 1932, the gas companies of this country transported and distributed 1.25 trillion cubic feet of gas to 15.5 million customers. In 1950, the gas companies of the country served 24 million customers with 5.5 trillion cubic feet of gas.

Savings are notable

Unfortunately, pipelines do not improve with age. The older the pipeline, the less it may be worth, and the more maintenance it requires. But alert corrosion prevention engineering can and does produce substantial savings. For example, in one city a certain relatively short section of 20-year-old distribution line showed a leak record of four leaks per year for the five-year period from 1941 to 1946. The record also shows that the average cost of repair of this section of line under a paved street was $520 per year. In 1946, corrosion engineers installed two magnesium anodes on this section of pipe at a total cost of $28. During the ensuing five years, there have been no further leaks reported in this section.

Management knows that the expenditure for corrosion prevention, of only a small portion of the money ordinarily spent for pipeline maintenance, can obviate the expenditure of the large sums now being charged to maintenance. Therefore, management, first of all, expects the corrosion engineer to develop ways and means of economically retarding and mitigating corrosion, so that these savings in maintenance will be an accomplished fact.

The natural and manufactured gas companies of the United States now have capital of nearly eight billion dollars invested in plant, most of it as pipelines buried in the earth under such conditions of environment that eventually they will be destroyed. There are many more miles of gas line in this country than of railroad track. The major portion of that pipeline mileage is more than twenty years old. Its installed cost was about $8 thousand per mile for eight-inch line. But what about a new eight-inch line, built because the original line has corroded to the point it can no longer be used? First of all, the pipe alone will now cost at least one hundred dollars a ton instead of fifty dollars, and its installation cost has increased in even greater proportion. As a result, the total installed cost of the eight inch replacement line will be at least twenty thousand dollars per mile, 2.5 times as much as the original line.

The idea of increasing the plant investment of the gas companies of this country to twenty billion dollars, without increasing the total capacity of that plant, or without a compensating increase in rates, is fantastic but that is exactly the way we are headed every time we have to replace a 15- or 20-year-old gas line because of corrosion. Therefore, management expects the corrosion engineer to develop ways and means of extending the useful life of the existing underground structures as much as possible. During the period of the present pipe shortage, continued utilization of the existing plant by stopping the corrosion at its present level has an additional

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benefit. This is so that the pipe tonnage that is thereby made available to the company can be utilized to advantage to increase the capacity of its gas system, instead of being frittered away in maintenance of existing capacity. Management looks to the corrosion engineer to make this possible.

Management has to fight a continuous battle to maintain a favorable relation between gross revenue and gross operating cost. Any item with an undesirable effect on both sides of the ledger is doubly suspect. Consequently, management looks with a skeptical eye at the volumes and charges for unaccounted-for gas. A 3/32-inch hole in an 8-ounce pressure distribution line can lose more than a million cubic feet in a year. If it is in a 15-pound intermediate system, the loss can be over 2.5 million cubic feet, and if it is in a 100-pound line, it will be almost 10-million cubic feet per year, and so on. Stopping the corrosion will prevent the formation of pit holes with their resultant gas losses. Management expects the corrosion engineer to reduce the charge for unaccounted-for gas by preventing the leakage occurring as a result of corrosion.

A competitive sales point

Management knows that the continued, long time prosperity of a gas company depends to a large extent upon its having a good domestic base load. Yet today, while we enjoy a general economic advantage, cost wise, in favor of gas as a fuel, we are losing some of the base domestic load to electricity.

One of the talking points of the electric range or water heater salesman has been the potential cost and the mess of replacing the old gas service line installed when the customer's house was built, but now probably corroded (so he says) to such an extent as to require replacement. Many of the 15 million gas ranges in use are on old service lines. The cost of the original gas service line was unnoticed in the total cost of the house, but its replacement looms up now as a significant expenditure. Management expects the corrosion engineer to provide the economic solution of this problem and deprive the electric service salesman of such a talking point.

Management is well aware of the fact that an accurate leak record of its property will serve as a means of evaluating the tangible economics of corrosion prevention and mitigation, and expects the corrosion engineer to watch that leak record. He is expected to be conversant with the operation and the general condition of the property in his territory, with particular reference to the current life expectancy of the underground structures.

Some of the benefits of this general program will be intangible. Whether or not the work of the corrosion engineer prevented an explosion accident with its inevitable claim for damages can never be demonstrated. But management does know that reduction in the possible sources of accident will produce a drop in their incidence, and expects the corrosion engineer to be a major factor in reducing the possible sources of explosion accidents.

Until a very few years ago, much of the corrosion protection installed with a new line was the result of guess-work by ordinary pipeline men, who are in effect laymen so far as corrosion prevention is concerned. It is much the same as the layman with a pain in his stomach who guesses that he has a case of indigestion, and prescribes for himself some compound he has heard about on the radio. If it is indigestion, the self-medication may be successful, but it may not be simple indigestion. The symptoms are much the same for peptic ulcers. If the illness is caused by ulcers, then the self-prescribed bicarbonate of soda is anything but desirable, and the patient may eventually suffer a perforation, that is to say, a pit-hole in his stomach wall.

Pipe and pipeline materials are too scarce, too important, and too expensive for us to continue with guess-work solutions. Management, not wishing to acquire perforated ulcers either on its pipelines, or in its digestive system, is anxious to do away with the guess-work in corrosion prevention on new construction. Therefore, management expects the corrosion engineer to have a share in all new construction, beginning with the planning of the line, and including a voice in the choice of the route of the line so as to avoid, as much as possible, those soil conditions or formations having the greater corrosion tendency.

Unbelievably simple changes can sometimes result in material saving. For example, during the recent construction of a 16-mile section of 12-inch high pressure line, one of our corrosion engineers called attention to the fact that swinging a 1000-foot section of the line to a parallel location only 200 feet away would keep it out of a poorly drained formation. At another point on the same line, he recommended swinging a short section of the line to the slightly uphill side of a large dairy barn and barnyard. His soil resistivity tests proved that even at the considerable distance between the barnyard and the proposed right of way, there would be a greater tendency to corrode on the down-slope side of the barn. Neither of these changes added one cent to the cost of the line itself, but they did lengthen its natural life expectancy, and therefore made the prevention of corrosion easier and cheaper.

Must choose protection

It would be an easy solution on new construction to select the most complete possible protection, and say that every foot of line installed would be protected in that manner, but some sections of even the 50-year-old pipelines still do not show any evidence of corrosion, though other sections of the same line have been replaced two or even three or more times over the 50 years. Therefore, management expects the corrosion engineer to designate the type of protection and the materials to be installed in the various sections requiring protection.

It is axiomatic that the sure way to lose today's war is to fight it with the weapons with which you won yesterday's war. Therefore, in this continuous battle with corrosion, management expects the corrosion engineer to be always "two jumps ahead" in the development of new weapons. Just a few years ago the complete installation of 10 anodes a day was good performance for a three-man crew. Then corrosion engineers got the anode manufacturer to change the shape of the anode to one that didn't require such a deep hole, and the production went up to 15 a day. Then they installed power driven augers on the jeeps and power wagons and built wire-laying plows, and production jumped to 50 a day. Most recently they have been installing the anodes before the pipeline is lowered into the ditch, and have supplemented the truck mounted augers with self-propelled, garden tractor type, power augers. Now, the same crew installs as many as 100 anodes a day. They may turn up next with some sort of a "shaped-charge" device, start shooting the anodes into the ground without digging any hole at all, and boost the production to 200 installations a day with the same three-man crew.

(Continued on page 46)

Kitchens

SPRING STYLE SHOW

Kathryn Grayson, star of the forthcoming MGM release, "Lovely to Look At," is featured in ads announcing the Spring Style Show. Her likeness will be reproduced in life-size and miniature display easels

a PAR activity

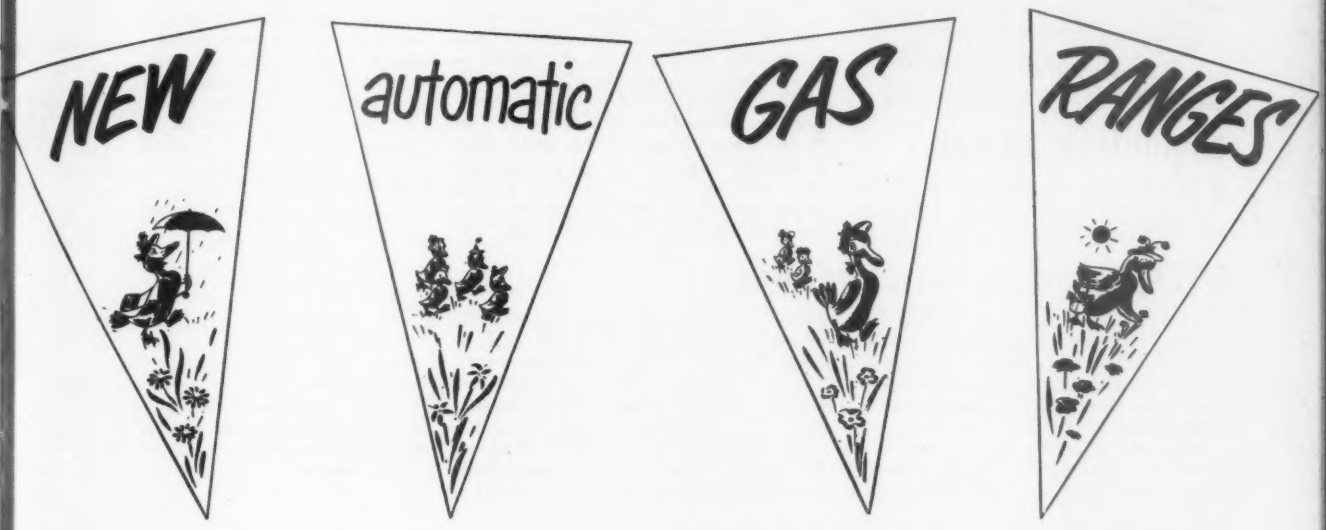
American Gas Association's 1952 Spring Style Show will aim to modernize the nation's "old-hat" kitchens in true vernal spirit during April, May and June. The promotion, which has grown rapidly to achieve status with the Old Stove Round Up, will enlist the participation of more gas companies, dealers and manufacturers than any previously sponsored A.G.A. campaign.

An exciting feature of this year's promotion is the tie-in which has been arranged with the MGM movie, "Lovely to Look At." The technicolor film stars Kathryn Grayson in a screen adaptation of the operetta "Roberta."

Several important scenes in the picture are staged in a Parisian salon, affording an appropriate tie-in for the Style Show theme. Full color advertisements featuring Miss Grayson will run in leading national magazines. Other national advertising by A.G.A., augmented by advertising in national magazines by gas range manufacturers, will also support the promotion. Newspaper, direct mail, television and radio advertising by gas utilities and dealers will help to spur sales on the local level.

Among the special display pieces

uming a style quality that can speed the replacement of outmoded equipment



which will be used in the campaign will be a life-sized, full color display featuring Kathryn Grayson. This may be placed next to a gas range for a window or floor display. Miss Grayson will also be used in five different poses in a variety of high-fashion costumes, reproduced in full color in eight inch miniature easels for range display use. A set of pennants in three pastel colors will spell out "See the New Automatic Gas Range." A pair of five-foot window valances are also included.

Decorative features on the pennants and window valances will be a family of ducks. These will be reproduced individually to make a set of 12 adult and baby ducks in color, die-cut for pasting on store windows and sales floor walls. Among the other items in the display kit are: a 22-inch by 28-inch poster in full-color featuring Kathryn Grayson; half a dozen jumbo price tags which allow space for price, down payment and terms, and have listed on the back several features of modern automatic gas ranges; and four full-color photographic displays for use on range tops. In all, there will be 41 pieces in the complete display kit including three color pennants and window valances and full color rendition of the other items. The entire 41-piece kit will be available from A.G.A. at the low price of $7.15 per kit, f.o.b. New York.

For local utility tie-in advertising there will be a black and white newspaper mat duplication of the full-color A.G.A. ad, now scheduled for the April 7 issue of *Life* and the May issue of the *Woman's Home Companion*. Several gas range manufacturers are producing special display materials to tie their brand name ranges in with the Style Show theme.

In many cities, the gas utility is arranging with local department stores and women's dress shops for fashion shows to be held in conjunction with the showings of new gas range models. Home service departments will utilize the theme in their meetings with consumers, teachers and other special groups.

GAMA, through the "CP" Group, will support the promotion through trade paper and direct mail advertising. A selected list of gas range dealers will be sent a giant three-color broadside detailing all phases of the campaign.

This broadside will also be available for gas utilities to mail to dealers in their territories. In addition to giving a quick resume of the plans for the campaign it includes illustrations of the materials in the 41-piece display kit and an illustration of the 53-piece china set available for use as a premium with the sale of an automatic gas range during the campaign. Order forms for the display kit and the china set are included in the broadside.

Supplementary items available for utility and dealer use in the Spring Style Show include: the very popular "Food is Fun" cookbook which has been distributed to more than half a million housewives; the new "Tick Tock Oven Means;" a cookbook designed expressly for use with the automatic clock-controlled gas range and which gives recipes with "cold standing" time and cooking time for absentee cooking; attractive blue and white plastic aprons decorated in the blue flames symbol; potholders imprinted with the slogan "Smart Cooks Know—Gas Has Got It!"; balloons imprinted with the same slogan for distribution to children and also for decorating sales floors and display windows; booklets from the "Big Ten" series including "10 Key Pieces to Modern Kitchen Planning" and "10 Lucky Numbers to Help You Pick the Best Modern Range;" and several other items. The portfolio which will be mailed to gas companies in mid-February, will also

(Continued on page 40)

Industry news

Service responsibility committee formed

A COMMITTEE on Customer Service Responsibility has been formed within the gas utility industry to review policies pertaining to servicing gas appliances and to delineate the respective responsibilities of the manufacturer, distributor, dealer and gas company. The committee, formed under the authorization of the American Gas Association's Executive Board, will cooperate with a parallel committee of the Gas Appliance Manufacturers Association.

Howard B. Noyes, vice-president, Washington Gas Light Co., will serve as chairman of the new committee. Members include: L. B. Bonnett, vice-president, Consolidated Edison Co. of New York, Inc.; Dean T. Burns, assistant general manager, Citizens Gas & Coke Utility, Indianapolis; D. A. Crawford, vice-president, Atlanta Gas Light Co.; Hall M. Henry, vice-president, NEGEA Service Corp., Cambridge, Mass.; W. M. Jacobs, vice-president, Southern California Gas Co., Los Angeles; Andrew W. Johnston, engineer of distribution, Boston Consolidated Gas Co.; John J. Novy, assistant to vice-president, The Peoples Gas Light and Coke Co., Chicago; and Milton J. Pfieffer, vice-president, The Cincinnati Gas and Electric Company.

Also appointed as members are: R. A. Puryear, Jr., vice-president, Alabama Gas Corp., Birmingham; James C. Reid, vice-president, Southern Union Gas Co., Dallas; J. D. Roberts, vice-president, Mountain Fuel Supply Co., Salt Lake City; W. G. Rogers, president, The East Ohio Gas Co., Cleveland; Herbert H. Ross, vice-president, Oklahoma Natural Gas Co., Tulsa; A. H. Stack, president, The Tampa Gas Co.; Charles M. Sturkey, vice-president, Seattle Gas Co.; Frank H. Trembly, Jr., vice-president, The Philadelphia Gas Works Co.; and Robert E. Williams, district manager, Binghamton Gas Works, Binghamton, New York. C. George Segeler, A. G. A. Headquarters, will act as secretary for the committee.

A.G.A. members earn citations

TWENTY-EIGHT A. G. A. member companies have been awarded certificates of management excellence by the American Institute of Management. The award was presented to only 298 companies throughout the United States.

The A. G. A. members who received the citation are Addressograph-Multigraph Corp., Armco Steel Corp., Burroughs Adding Machine Co., Carrier Corp., The Cincinnati Gas & Electric Co., Cities Service Co., Consolidated Gas Electric Light and Power Co. of Baltimore, Consumers Power Co., Continental Oil Co., The Dow Chemical Co., Florence Stove Co., General American Transportation Co., General Electric Co., Holland Furnace Co., Ingersoll-Rand Co., International Business Machines Corp., McGraw Electric Co., Minneapolis-Honeywell Regulator Co., The National Cash Register Co., Pacific Gas and Electric Co., Pacific Lighting Corp., Panhandle Eastern Pipe Line Co., Phillips Petroleum Co., Pittsburgh Consolidation Coal Co., Rockwell Manufacturing Co., A. O. Smith Corp., The Trane Corp., and Washington Gas Light Company.

Super Inch smashes daily delivery record

WITH THREE RECENTLY completed compressor stations now operating, Pacific Gas and Electric Co.'s 500-mile Super Inch has begun delivery of a record-smashing 400 million cubic feet of natural gas daily. The 34-inch line, the world's largest, runs from Topock, Arizona to Milpitas. It cost $63 million to build.

Norman R. Sutherland, Pacific Gas and Electric Co. vice-president and general manager, said that the three compressor stations were completed on schedule, and in time to give northern and central California necessary additional supplies of natural gas during peak winter months.

Situated along the Super Inch route at Topock, Hinkley and Kettleman Hills, the compressor stations are designed to boost the line pressure from 500 pounds per square inch to 800 pounds. The speed of gas in the line has been increased, so that gas entering the line at Topock reaches Milpitas in 42 hours, 18 less than before.

Gas men go to college

THE FIRST OF A SERIES of intensive business training courses to be given by colleges and universities for gas appliance salesmen start in February at City College, New York.

Outlines of the courses, and plans to extend the training program to other cities have been formulated by representatives of the Association of University Evening Colleges, the Gas Appliance Manufacturers Association, A. G. A., local utilities and dealer associations.

The City College courses will serve as a proving ground for methods, materials and procedures. Results will be "packaged" so that comparable courses can be made available all over the United States by other members of the Association of University Evening Colleges.

The basic selling courses to be given by City College will consist of eight three-hour sessions—one evening a week for eight weeks. Two sections are planned for the pilot program, one in Brooklyn beginning on February 11, and the other in Newark, N. J., beginning on February 12.

Although there are no academic prerequisites, each section's enrollment will be limited to 30 salesmen and dealers who sell gas appliances. The tuition fee for the eight-session course is $27.00. Salesmen or dealers who wish to attend the course should send names, addresses and tuition fees to the City College Midtown Business Center, 430 West 50 St., New York 19, New York.

Current statistics of the gas industry

• **Utility gas sales**—November, 4,348 million therms, up 20.7 percent over 3,602 million therms in October and up 26.0 percent over 3,450 million therms in November 1950.

• **Gas-fired central heating equipment**—December preliminary, GAMA figures, 40,400 units, down 27.7 percent from 55,900 units in November and down 35.7 percent from 62,800 units in December 1950. (Breakdown: 25,700 gas-fired furnaces; 3,400 gas-fired boilers; 11,300 gas conversion burners).

• **Oil-fired burners**—According to GAMA, installations during 1951 totaled 694,524, down 11.7 percent from 786,822 installations in 1950.

• **Domestic gas range shipments**—December preliminary, GAMA figures, 145,800 units, down 22.2 percent from 188,400 units in November and down 38.2 percent from 235,900 units in December 1950.

• **Electric range shipments**—November preliminary, GAMA figures, 118,000 units, down 6.3 percent from 126,000 units in October and down 20.1 percent from 147,700 units in November 1950.

• **Automatic gas water heater shipments**—December preliminary, GAMA figures, 118,800 units, down 18.2 percent from 145,300 units in November and down 41.3 percent from 202,500 units in December 1950.

• **Electric storage water heater shipments**—GAMA figures, November, 52,200 units down 23.1 percent from 67,900 units in October, and down 42.0 percent from 90,000 units in November 1950.

McCarter Medals awarded by metropolitan utilities

THREE UTILITIES in the Greater New York area, Public Service Electric and Gas Co., Newark, Brooklyn Union Gas Co., and Consolidated Edison Co. of New York, Inc., have bestowed McCarter Medals, Bars or Certificates on seven of their employees.

The McCarter Medal is awarded by the American Gas Association to employees of member companies for successful prone pressure method resuscitations from gas asphyxiation. The certificate is given for assistance in such resuscitations. The bar is given for a second successful resuscitation performed by a holder of the medal.

Public Service awarded the McCarter Medal to John C. Turbett and Frank Riker for saving a couple overcome by gas in their apartment. Both men applied artificial respiration. The certificate of assistance was bestowed on Henry Golden for his help to Messrs. Turbett and Riker. John C. Ellaks received a McCarter Bar, his second McCarter award within five years, for saving the life of a Montclair woman.

At Brooklyn Union, the medal went to Nicholas M. Venezia for saving the life of a woman overcome by gas. Walter A. Hohn received the certificate for assisting.

Consolidated Edison Co. of New York, Inc. awarded the McCarter Bar to Louis F. Rech, a maintenance man for saving the life of a New York man, found unconscious in his gas-flooded apartment. Mr. Rech has been cited on two previous occasions for meritorious deeds. In 1928, he received the McCarter Medal for successfully resuscitating a woman and in 1940, he saved the life of a two-year-old child, on the verge of strangulation. At this time, he was awarded the Consolidated Edison Company's meritorious service certificate.

A.G.A. announces new publications

LISTED HERE are publications released by American Gas Association during December and January, up to closing time of this issue of the MONTHLY. Information in parentheses indicate audiences for which each publication was designed.

PAR

● **PAR Briefs—Fourth Quarter, 1951** (for gas utility executives). Sponsored by the PAR Committee, the publication is available at A. G. A. Headquarters, free.

Laboratories

● **Directory of Approved Appliances and Listed Accessories—January 1952** (for utilities, manufacturers, dealers, code authorities). Annual subscription available from publication sponsor, A. G. A. Laboratories, for $2.00.

Promotion

● **Water Heater-Clothes Dryer Portfolio** (for utility advertising departments and dealers). Available from A. G. A. Headquarters, 20 cents each.

● **Spring Style Show Portfolio** (same as above). Available from A. G. A. Headquarters, 25 cents each. Dealer broadside, prepared especially for Spring Style Show, available from A. G. A. Headquarters, $10 a hundred.

Rate

● **Natural Gas Companies Having Industrial "Interruptible" Rates in Effect (As Shown in A. G. A. Rate Service).** Sponsored by Rate Committee, available at no charge from A. G. A.

Statistical

● **Monthly Bulletin of Utility Gas Sales** (for sales managers, statisticians, banks, investment houses, newspapers, appliance manufacturers). Available from A. G. A. Bureau of Statistics, free.

General

● **Teamwork** (gas company delegates, A. G. A. manufacture members, GAMA manufacturer members, members of associated organizations, GAMA directors, and A. G. A. committee chairmen). Available from A. G. A. Headquarters, free.

Brooklyn Borough Gas cited for safety measures

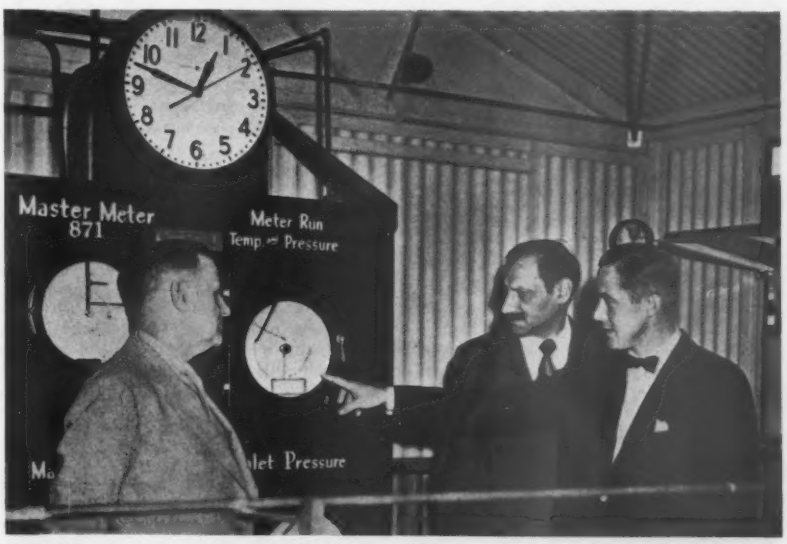
THE BROOKLYN BOROUGH GAS CO., Coney Island, has been praised for saving lives through protective measures. Dr. John F. Mahoney, commissioner of the New York City Department of Health and Jerome Trichter, assistant commissioner, commended the utility for providing a comprehensive inspection service for gas appliances as a part of its safety program.

The commissioners made their statement following a tour of the company's operating properties. At the invitation of Walter M. Jeffords, Jr., president, the tour was made recently to show the procedures being followed in converting from manufactured to natural gas.

The company's safety program includes a two-way radio system with seven cars, equipped to patrol the district at all times; maintenance of a customers' service department of 48 servicemen and five supervisors. The department's personnel is completely company-trained in all phases of gas appliance servicing. Almost all the men have had at least seven years' experience in regulating and servicing gas appliances. A 24-hour coverage by servicemen, plus a careful checking of installation of new gas refrigerators is maintained.

As a community service, Brooklyn Borough Gas has distributed to apartment house owners and others using old-fashioned water-cooled gas refrigerators, a Department of Health circular warning against outmoded appliances.

According to Mr. Jeffords, no fatalities attributable to faulty gas appliances have occurred in the area, which has a population of a half-million residents.



Brooklyn Borough Gas Co., Coney Island, N. Y., is cited for comprehensive safety program by Dr. John F. Mahoney (left) commissioner of New York City's Department of Health and Jerome Trichter (center) assistant commissioner. Brooklyn Borough President Walter J. Jeffords Jr. (right) conducts plant tour

Santa flies with Southern Natural's pilots

ALL THROUGH THE YEAR, children at lonely farm houses along the Southern Natural Gas Co.'s pipeline wave at the patrol pilots as they fly over their regular runs, checking the line. But when they ran to greet the pilots a week before Christmas, they received more than the usual friendly return wave. At each house, a small parachute came floating down with a sack containing hard candy, a little American flag, and a Christmas card from the pipeline company.

S. H. Downey, Southern Natural's safety director, originated the flying Santa idea last July. As a result, over four hundred miniature chutes were dropped, carrying more than six hundred fifty pounds of hard candy. The "Candy from Heaven Specials," as patrol pilots George Guthrie and Calvin Hardy dubbed their Cessna planes, travelled along 2835 miles of line in Texas, Louisiana, Mississippi, Alabama and Georgia.

The parachutes, made from condemned military 'chutes, were constructed by W. A. Vees, a Southern Natural training instructor, his wife, and two Air Force men in their spare time.

Newspapers and radio newscasts carried reports of the trip, and by the first day, children were waiting all along the line. One boy was standing on the roof, his arms outstretched. At another isolated farm, a man ran out with his shotgun, but when he saw the Christmas greeting float down, he bowed and waved his thanks!

Many of the children wrote to Southern Natural Gas Co. headquarters in Birmingham, expressing thanks for the greeting and telling of their friendships with the "gas line pilot."

New lines increase Los Angeles gas supply

MAJOR PIPELINE construction jobs have been completed by Southern California Gas Co. and Southern Counties Gas Co. to reinforce the Los Angeles natural gas supply. They are designed to connect communities served by the integrated pipeline system of the two companies, and connect with all major sources of supply.

One 24-mile section is known as the Lindley-Crenshaw line. This new 30-inch line is the latest increment in a long-range plan to encircle the Los Angeles area with large diameter pipelines. It will also serve to reinforce the gas supply to rapidly developing areas around the city. Built jointly by Southern Counties Gas Co. and Southern California Gas Co., the line cost $2,564,000.

The second major pipeline job is the 18-mile Southern Counties Gas Co. section of the 1950-51 La Goleta line, which supplements a 21-mile section completed earlier.

The new sections increase deliverability from La Goleta gas storage field and Ventura oil fields by 100 million cu. ft. daily.

Publish guide to better public and employee relations

SUCCESSFUL communication of ideas is a basic necessity in building effective employee and public relations programs. This is the underlying theme of *Speak up, Management,* the newly published book by Robert Newcomb and Marg Sammons—the man and wife team who operate professionally as Newcomb & Sammons, management consultants.

Designed to guide the installation of effective programs of communications between management and its employees, community and the general public, the book includes hundreds of up-to-date proved successful ideas. It deals with all the accepted devices of employer-employee communication and presents a thorough discussion of each.

Included are discussions of: the person-to-person meeting, group meetings with employees, and group meetings with supervisors; the management newsletter, the supervisors' newsletter, the employee handbook or indoctrination manual and the annual report for employees; the bulletin board, the employee publication, the plant open house, the plant tour, community relations and visual and audio-visual communications.

SPEAK UP, MANAGEMENT. *By Robert Newcomb and Marg Sammons, partners, Newcomb & Sammons, management consultants, Chicago. 295 pages plus index. Cloth bound. Published by Funk and Wagnalls Co., 153 East 24, New York 10, N. Y. $5.*

Analyse past, present and potential energy sources

HOW long will existing fuel supplies last, and what can we do against the day they are exhausted? *Energy Sources—the Wealth of the World,* presents an analysis of this vital problem.

The history of man's effort to wrest energy from nature is given. There follows a detailed review of the size of energy resources, technology of production, efficiency of conversion and progress being made in conservation.

With only the statistics not readily accessible elsewhere, the book interestingly tells much about all types of energy sources and what we may expect of them in the future. Oil, gas, coal, hydro-electricity, solar and nuclear, even wind and tide power and others, are covered.

ENERGY SOURCES—THE WEALTH OF THE WORLD. *By Eugene Ayres, Gulf Research & Development Co. and Charles A. Scarlott, editor, Westinghouse Engineer. 344 pages. Cloth bound. Published by McGraw-Hill Book Co., Inc., 330 West 42 St., New York 18, N. Y. $5.*

Gas heating and air conditioning council to meet

REPRESENTATIVES of utilities, manufacturers and the press will address the delegates to the annual meeting of the Metropolitan Gas Heating and Air Conditioning Council of New York, Hotel Statler, New York, March 21.

The panel of speakers includes Charles G. Young, president, Springfield (Mass.) Gas Light Co.; W. Paul Jones, president, Servel, Inc.; Ray Motley, editor, *Parade* Magazine; Frank J. Nunlist, Jr., general sales manager, L. J. Mueller Furnace Co.; and Charles B. Delafield, vice-president, Consolidated Edison Co. of New York, Inc.

Members of the gas heating and air conditioning industry are invited to attend, and to take part in discussions. Gas appliance dealers, manufacturers and utility company representatives have found the meeting a forum for the interchange of ideas and for the solution of mutual problems.

The sessions are scheduled for 10 A.M. at the Penn Top Room, registration fee is $5.50.

Southwestern short course planned

THE SOUTHWESTERN Gas Measurement Short Course General Committee met in Houston, Texas on January 11 to plan the 27th annual course to be held at the University of Oklahoma in Norman on April 8, 9 and 10.

Approximately 60 qualified persons will conduct the large number of classes that will be held during the session. It is the purpose of the course to provide associations, commissions, gas, gasoline and oil companies, a means whereby industry members may study problems pertaining to the measurement and regulation of dry and casing-head gas. The aim is to increase accuracy of measurement and efficiency of regulation, so that the public may be better served; to put dealings between buyer and seller on a more accurate basis; and to disseminate correct information regarding engineering and practical problems throughout the industry.

The short course program will be ready during the middle of March.

Change committee name

AT a meeting in the William Penn Hotel, Pittsburgh, December 5, the A. G. A. Dealer Relations Committee voted unanimously to change its name to the A. G. A. Dealer Sales Committee. W. D. Williams, assistant to the sales manager, Public Service Electric & Gas Co., Newark, N. J., is chairman of the committee this year.

Detroit utility wins safety contest

MICHIGAN CONSOLIDATED GAS CO., finished the year in number one position in the Public Utilities Division of the Detroit Industrial Safety Council's Inter-Fleet Traffic Safety Contest.

This was not true five years ago when, without a formal accident prevention program for its drivers, the company was faced with a high and rising motor vehicle accident frequency rate.

With the cooperation and participation of operating department heads and with full support from top management, a thorough and formal safety program was put into effect for the 1,500 drivers who travel 10 million miles each year.

The program is based on the "three E's" of safety—engineering, education and enforcement. The purpose is to teach personnel working in specialized classifications how to be "professional" drivers.

The program requires *more* than the law—one big reason for its success. Preventive maintenance, including periodic motor vehicle inspection and daily check-up by drivers, leaves nothing to chance. Safety education plays a big part, too. The safety message faces the employee everywhere—on bulletin boards, in the company house organ, in special driver training classes.

The program is enforced by an accident review board, made up of supervisors and headed by the transportation superintendent, which meets each month to pass final judgement on accidents and to suggest remedial action. Judgement is based on whether or not everything reasonably possible was done by the driver and supervisor to prevent the accident.

Michigan Consolidated's record proves that when driver, supervisor and executive join hands in an intensive safety program, the motor vehicle accident problem *can* be licked.

What to read and where to find it

● **Dollar Savings Through Standards** (American Standards Association, 70 East 45 St., New York 17, N. Y., $1.00 a copy). Specific savings and production benefits directly attributed to standardization in American industry are cited in this 32-page report. It is a presentation of 140 documented case history studies, now made available by the American Standards Association. Originally, the report was prepared for the Economic Cooperation Administration to encourage European manufacturers to adopt U. S. production methods. It is now being released in book form as a service to American industry to promote military preparedness.

Letter tells company problems, achievements

IN A PERSONAL LETTER to all Ohio Fuel Gas Co. employees, W. N. Grinstead, president, reported on some of the things the Columbus utility has done during the past five years, and outlined plans for 1952.

Mr. Grinstead stated that Ohio Fuel Gas has spent $82 million since 1946 for new facilities to deliver more natural gas to its customers and plans a $22 million construction program for 1952. Employees were told also of company problems, such as increasing costs, rising payrolls and taxes. Despite the fact that Ohio Fuel Gas was delivering more gas than ever before in its history, Mr. Grinstead reported that demands were so great that restrictions had to be placed on new house-heating users to protect present customers. Industrial needs have increased also.

Industrial gas men hold yearly meeting

THE ANNUAL meeting of the Midwest Industrial Gas Council was held at the LaSalle Hotel, Chicago, on January 18, bringing together a large group of industrial gas men from the neighboring states.

After an opening address by Hale A. Clark, of the Michigan Consolidated Gas Co., the retiring chairman, an election of officers was held. The newly elected officers are: chairman, Ralph J. Hoberg, The Peoples Gas Light and Coke Co., Chicago; vice-chairman, Nicholson G. Wade, Citizens Gas & Coke Utility, Indianapolis; secretary-treasurer, Alexander E. McCormack, Public Service Co. of Northern Illinois, Elgin.

The first speaker was John Clennon, engineer of The Peoples Gas Light and Coke Co., who with the aid of slides, described the new "Distribution System Calculator." This electrical device not only determines whether a new load can be taken on in any part of the distribution system but does it in minutes instead of hours.

R. N. Just, of the Underwriters Laboratories, showed his sound film, "Approved by the Underwriters" which took his audience on an informative tour of the Chicago underwriters testing laboratory.

Paul Furkert, of the Gas Appliance Service Co., presented a talk on "High Speed Gas Heating" in which he described a new machine developed by his company for hardening gear teeth.

The meeting closed with a paper by A. D. Frydendall, of The Peoples Gas Light and Coke Co., who outlined the use of gas on "Large Boiler Conversions."

A two-day Spring meeting of the council will be held in Indianapolis, on May 8 and 9.

American Stove's new name is Magic Chef, Inc.

MAGIC CHEF, Inc. has been selected as the corporate title of American Stove Company. The new name, adopted at a special meeting of the stockholders on December 13, was prompted by the increasing public acceptance of the Magic Chef trademark.

Company officials stated that this merely involves a change in name, not the formation of a new corporation. Certificates of stock in the name of American Stove Co. automatically become certificates of stock in Magic Chef, Inc. Change became effective December 31.

Ebasco awards for top safety records

AT A SPECIAL ceremony attended by chief executives of Ebasco client companies in New York during December, R. B. Wilson, The Mississippi Power & Light Co. accepted the Ebasco gold safety award on behalf of his company. The silver award was given to J. L. McNealey, Columbus and Southern Ohio Electric Co., and achievement certificates were presented to G. L. MacGregor of Dallas Power & Light Co. and to M. C. Sumners, MidSouth Gas Company.

Mississippi Power & Light Co. scored an "injury index" of 65.72 percent below the national average. Similar figures for the other award winners were Columbus and Southern Ohio Electric Co.—64.89 percent, MidSouth Gas Co.—55.72 percent and Dallas Power & Light Co.—42.78 percent. Indicative of Mississippi Power & Light Co.'s excellent performance is the fact that four years ago, the company had a record of 200 percent above the national average.

In presenting the awards, H. H. Scaff, Ebasco vice-president, stated that a good safety record is also good public relations, good employee relations and good economics.

Name new president of Portsmouth utility

JOHN V. WISE has resigned as vice-president of the Virginia Gas Distribution Corp., Staunton, and M. O. Wiggins has been appointed acting manager to succeed him. The company is a member of the Charleston Group, Columbia Gas System, Inc.

Mr. Wise leaves to become president of Portsmouth (Va.) Gas Company. He replaces W. H. Trapnell, who will now serve as chairman of the board of directors. Mr. Wiggins has been promoted to acting manager of Virginia Gas Distribution Corp. from his position as local manager. His successor has not been named.

Mr. Wise began his career in 1915, when he was employed by The Ohio Fuel Gas Co. after graduating from Meredith Business College in Zanesville. Before being transferred to the Virginia Gas Distribution Corp. in 1933, he served as a pipeliner, meter repairman, inspector, construction foreman, clerk and office manager, and district manager. He was made vice-president of the corporation in 1939, and was placed in charge of all Columbia Gas System gas distribution properties in Virginia.

Mr. Wiggins, like his predecessor, began his business career with Ohio Fuel. After attending Ohio State University, he was employed at Zanesville in 1927. He was transferred to Staunton in 1935, as foreman. In 1937 he was named local manager at Lexington, Va., where he remained until last year when he became manager at Staunton.

M. O. Wiggins

John V. Wise

Personal and otherwise

Gas practice course graduates four

THE AMERICAN GAS PRACTICE Course, conducted by Prof. Jerome J. Morgan under A. G. A. auspices, has several new graduates.

Parts I and II of the course have been completed by Harry G. Pfennig, Whiting, Ind.; Richard T. Hauck, Providence (R. I.) Gas Co.; and Thomas M. Gray, Brooklyn Union Gas Company. Mr. Gray is the first to finish of 10 Brooklyn Union employees who enrolled for the course in August, 1950.

David W. Brown, Public Service Electric and Gas Co., N. J., has completed Part II. Mr. Brown is assistant superintendent of distribution for Public Service in Trenton.

Part I of the course covers the production of manufactured gas, while Part II deals with transmission, distribution, utilization and other gas company operations.

Lauderbaugh advances in Pittsburgh

A. B. LAUDERBAUGH has been promoted to the position of chief engineer of the Manufacturers Light and Heat Co., Pittsburgh.

Mr. Lauderbaugh has served as the company's chief gas engineer since 1947. His new responsibilities include supervision of the gas engineering, civil engineering, gas measurement, corrosion, communications and budget departments.

Mr. Lauderbaugh, a graduate of Bucknell University, joined the Columbia Gas System in 1928, and came to the gas company general offices in 1929 as a chemical engineer. He held the posts of assistant chief engineer, chief engineer of compressor stations, and chief gas engineer.

Mr. Lauderbaugh has contributed many articles to the trade and technical press, and has been a speaker at meetings of the American Gas Association, Mid-West Gas Association, the Pennsylvania Natural Gas Men's Association, and the American Petroleum Institute. Active in A. G. A. Operating Section activities, Mr. Lauderbaugh is currently serving on the Chemical Committee, the Gas Production Committee, the Special Committe on Piping on Customer's Premises, and the Special Committee on Accident Prevention.

Winn joins Southern Natural

W. E. WINN, who has served the gas and petroleum industries since 1922, will join Southern Natural Gas Co. as manager of the exploration and production division. In this position, Mr. Winn will be in complete charge of the company's exploration, drilling, geological and production activities. He will also be responsible for the procurement of gas and gas reserves.

Mr. Winn comes to Southern Natural Gas Co. from the Ashland Oil and Refining Co., where he was the company representative in Louisiana, Mississippi and the Texas Gulf Coast. Before that, he was associated with Aetna Oil Co. and Sun Oil Company.

Mr. Winn is a graduate of the Agricultural and Mechanical College of Texas, where he received his degree in chemical engineering in 1922. He is a member of the American Chemical Society, the American Institute of Mining & Metallurgical Engineers, the American Petroleum Institute and a former member of the board of directors of the Natural Gasoline Association of America.

Mr. Winn's headquarters will be in New Orleans after March 1, when the company opens its new offices for his division.

W. E. Winn

Michigan utility promotes

FOUR OFFICIALS of Consumers Power Co., Jackson, Mich., have been advanced to new executive posts.

Robert P. Briggs, formerly financial vice-president, was elected executive vice-president and continues as a member of the board of directors. James H. Campbell, vice-president, was elected a director to fill the vacancy created by the death of M. W. Arthur earlier this month. H. Stanley Richmond and Donald E. Herringshaw were elected vice-presidents.

Mr. Briggs joined Consumers Power a year ago as financial vice-president. Prior to that, he had been vice-president of the University of Michigan in charge of all business and finance, including operation of the physical plant.

Mr. Campbell, who joined Consumers Power in 1933, has occupied various executive positions including those of manager of the Grand Rapids division and assistant to the president. He was elected vice-president in 1950.

Mr. Richmond, who has been in charge of sales, rates and employee relations, has served Consumers since 1926. He was manager of the Kalamazoo division, 1939 to 1947, when he was transferred to the general office in Jackson.

Mr. Herringshaw, who joined Consumers in 1923, has been in charge of gas operations since 1938 and has been vice-president of the company's subsidiary, Michigan Gas Storage Co., since its organization in 1946. Mr. Herringshaw is a member of American Gas Association.

Beecher succeeds Hartson at Equitable

DONALD B. BEECHER, formerly vice-president and general manager of Kentucky West Virginia Gas Co., Ashland, Ky., has been elected vice-president and general manager of Equitable Gas Co., Pittsburgh, the parent company.

Mr. Beecher succeeds D. P. Hartson, who retired after 32 years' service with Equitable. Mr. Hartson will continue as a director and consulting engineer.

Thomas H. Evans, formerly assistant to the vice-president in charge of operations of Equitable, will succeed Mr. Beecher as vice-president of Kentucky West Virginia.

Mr. Beecher was graduated from Ohio Wesleyan University and Carnegie Institute of Technology, beginning his business career with Equitable in 1926 as fieldman and chief meter inspector.

He is a member of American Gas Association, and is vice-president and director of Kentucky Oil and Gas Association. Mr. Beecher also serves as a director of Kentucky West Virginia Gas and Philadelphia Oil Company.

Mr. Hartson was employed by United Gas Improvement Co. after graduation from Colgate University in 1913, and joined Equitable in 1920 as distribution engineer. In 1942 he was named vice-president and general manager, the position he held until his retirement.

Mr. Hartson is a member of American Gas Association, West Virginia Oil and Natural Gas Association, and Pennsylvania Natural Gas Men's Association.

Mr. Evans attended the University of Pittsburgh and entered the employ of Equitable Gas Co. in 1937 as a commercial heating salesman. He is a member of American Gas Association and Pennsylvania Natural Gas Men's Association.

Executives named in Connecticut

A. S. JOURDAN and R. G. Ely have been named vice-presidents, while C. J. Ramage has been appointed assistant secretary of the Connecticut Light and Power Company.

As vice-president in charge of employee relations, Mr. Jourdan will consolidate and direct employee relations now being carried out in several departments. He joined the utility in 1910, and after several promotions was made assistant to the vice-president in 1925. He became manager of the Meriden office in 1929, and manager of the utility's central division, including Meriden, New Britain, Bristol and Middletown districts in 1939.

Mr. Ely, who succeeds A. V. S. Lindsley as vice-president in charge of sales, joined the company in 1951 as director of sales. A graduate of the Cornell University School of Engineering, he was previously assistant manager of industrial power sales for Public Service Electric and Gas Co., Newark, New Jersey.

Mr. Lindsley had served the company for more than 39 years when he retired on February 1. He had directed the company's sales activities for more than 33 years, and was known as the originator of many sales policies which have been adopted throughout the gas and electric industries. A graduate of Cornell University School of Engineering in 1909, he joined Connecticut Light and Power in 1919, was named sales manager in 1921 and elected vice-president in charge of sales in 1939.

Mr. Ramage, the new assistant secretary, began his utility career in 1923 as a storekeeper at the company's Montville steam power plant. After successive promotions, he was named Willimantic office manager in 1941.

Pennsylvanians elect officers, directors

H. H. PIGOTT, Equitable Gas Co., Pittsburgh, was elected president of the Pennsylvania Natural Gas Men's Association at the annual business meeting on January 10. R. L. Ehrman, T. W. Phillips Gas & Oil Co., Butler, was named vice-president. Other officers elected at the meeting were P. L. Kesel, of Pittsburgh, who was named secretary-treasurer, and Mark Shields, Pittsburgh, executive secretary.

The new board of directors, to serve for 1952 are: C. E. Bennett, Manufacturers Light & Heat Co., Pittsburgh; E. M. Borger, The Peoples Natural Gas Co., Pittsburgh; A. W. Conover, Equitable Gas Co., Pittsburgh; R. L. Ehrman; H. D. Freeland, Waynesburg; J. H. Isherwood, Allegany Gas Co., Port Allegany; J. J. Jacob, Jr., The Peoples Natural Gas Co., Pittsburgh; D. S. Keenan, Carnegie Natural Gas Co., Pittsburgh; John C. Peterson, Manufacturers Light & Heat Co., Pittsburgh; H. H. Pigott; H. S. Rose, United Natural Gas Co., Oil City.

Gas Service executive promoted

CARL SCHWIRTZ has been named assistant new business manager in the general office of The Gas Service Co., Kansas City.

Mr. Schwirtz joined the Gas Service Co. in 1937 as a clerk in the new business department. In 1941 he left for service in the United States Army. Upon his return in 1946 he rejoined the utility as a clerk in the cashier's department. Shortly afterward he was named chief clerk in the new business department, the position he held at the time his latest appointment was announced.

Elected C. of C. director

A. W. CONOVER, president, Equitable Gas Co., Pittsburgh, has been elected a member of the board of directors of the Pittsburgh Chamber of Commerce. His three-year term was announced at the Chamber's annual election meeting in December.

United Natural Gas picks officers

AT A MEETING of the board of directors on January 17, Frank F. Thurston was appointed assistant secretary and Howard C. Rose was appointed assistant treasurer of United Natural Gas Co., Oil City, Pennsylvania.

Mr. Thurston has been an employee of the company since 1924. Most of his service has been as a lease agent, and in 1950 he was appointed superintendent of the titles and contracts department.

Mr. Rose has served the company since 1933. He has been employed in the distribution department and the accounting department, and at the time of his present appointment he was chief clerk in the continuing property records division.

Texas Gas chooses Stoothoff

EVERETT O. STOOTHOFF has been appointed assistant to the secretary of Texas Gas Transmission Corporation. Formerly with Chemical Bank & Trust Co., New York, Mr. Stoothoff will be responsible for the minutes and other corporate records of the company and its subsidiaries.

With Chemical Bank and Trust Co., Mr. Stoothoff served as assistant secretary in charge of the corporate trust department. Prior to that he was associated for a number of years with Chase National Bank in New York City.

Mr. Stoothoff is a graduate of Colgate University, and has studied at New York University School of Law. He holds a trust certificate from the American Institute of Banking.

Mildred Endner named

MILDRED ENDNER has been appointed home service director of the Minneapolis Gas Company. In her new position, Miss Endner will direct a staff of 10 home economists. She succeeds Isabel McGovern, who has accepted a position specializing in television. Miss Endner has been supervisor of home calls in Minneapolis since 1943.

Manufacturers announce personnel changes

● **Servel, Inc.**—Harry L. Stearns has been appointed Detroit Sales manager, and James W. Slowe has been named Minneapolis district sales manager for Servel water heaters and refrigerators. Both men have served the company for over 24 years.

Emil P. Nensel has been named sales manager of the water heater division. Mr. Nensel has served the company since 1936.

● **John Wood Company**—William T. Briggs has been elected vice-president of the heater and tank division. He joined the company in 1940, as a sales representative, and has since served as Middle Atlantic district sales manager and eastern sales manager.

● **American Meter Company**—Donald C. Holtz has been named manager of the new Dallas orifice meter assembly plant and warehouse. He has served American Meter since 1935. Prior to his recent appointment, he was employed as an engineer in the orifice meter department of the Erie, Pa., factory.

● **Vulcan-Hart Manufacturing Co.**—Charles C. Coy of Louisville, Ky., has been named vice-president and treasurer, and E. L. Brown of Baltimore has been elected vice-president in charge of the Vulcan division.

Mr. Coy started his career with the Hart Manufacturing Co. in 1931. He was one of those instrumental in the purchase of the Vulcan division of the Standard Gas Equipment Corp. in 1949, which resulted in the formation of the Vulcan-Hart Manufacturing Company.

Mr. Brown joined the company in 1949 as manager of the Baltimore plant. He had been employed by Standard Gas Equipment since 1933.

● **Norwalk Valve Company**—Frank A. Thomas, Jr. has been named sales manager. He had been employed as assistant to the vice-president in charge of sales for Foster Engineering Co., Union, New Jersey.

● **Empire Stove Company**—J. E. Wellmuth has been appointed branch manager of the Chicago territory. Mr. Wellmuth was employed formerly by The People's Gas Light and Coke Co., Chicago, and Public Service Co. of Northern Illinois.

● **Rockwell Manufacturing Company**—M. J. Harper has been promoted to the post of eastern regional manager of sales. His successor as district manager in New York will be William S. Andrews, who has served in the company's Pittsburgh district in this same capacity.

Letters aid the fight for freedom

THE WAR OF IDEAS between communism and democracy can be fought most effectively by the American individual, says the Common Council for American Unity. Because the fight for a free world is a contest of ideas as well as arms, the council is engaged in a drive to enlist the 35 million Americans of foreign birth or parentage in a potent letter-writing campaign.

One of the best and cheapest ways to get American ideals to Europe and behind the Iron Curtain, says the council, is to write warm, personal messages to relatives and friends. Letters describing the intimate picture of America as the writer lives it, not as the Soviets describe it, can achieve results which government-sponsored programs cannot hope to accomplish.

The Ford Foundation and other benefactors have made substantial grants toward the $250,000 needed this year to effectuate the plan. American corporations and individual businessmen are contributing the rest.

More information about the plan may be obtained from The Common Council for American Unity, 20 West 40 St., New York 18. Contributions may be mailed there too.

Spring style show

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contain specific suggestions on how to conduct a style show in connection with the showing of new models of automatic gas ranges; how to conduct dealer meetings to introduce the campaign; and how to effect tie-ins with local motion picture theater exhibitors in connection with the showing of Miss Grayson's MGM technicolor motion picture, "Lovely to Look At."

The A.G.A. Spring Style Show has become popular because it provides the industry with an opportunity to glamorize gas ranges and gas cooking in terms of convenience, modernity and automatic features, just as the Old Stove Round Up helps the industry focus attention upon the millions of obsolete ranges still being used. The combination of the two annual campaigns gives the entire gas industry a great opportunity to approach consumers on the two most important stories which will enable the utility to maintain and increase the gas cooking load.

Home service

(Continued from page 15)

ers. Speedy Flame is a papier maché character which our display shop uses in window and floor displays.

The manipulation of the puppets was kept as simple as possible since they would be used by a large staff of girls, all of whom are not equally talented. We have one stationary puppet which means that the operator usually has one hand free. Likewise we designed the stage so it would be completely collapsible and easy to carry.

The stage is placed on the teacher's desk. The home service representative operates the puppets while seated at the desk where she is completely hidden from the students' view. Black theatrical gauze forms a background for the puppets.

The entire show can be set up in a minimum of time with no need for special props to be supplied by the teacher. The talk is planned for about 45 minutes. It can, however, be cut if necessary.

The take-home sheet of grooming tips is planned around the playhouse theme. It is suggested that the students have a party and beauty clinic called "Soap Suds Social." We suggest that at this party the girls try on shades and types of make-up, discuss hair styling and analyze becoming colors with colored scarves. Charts of hair styles and tips follow with recipes for refreshments—Glamour Girl Punch and Powder Puff Poppettes—on the last page. The take-home sheet ends with a thank you note from the automatic gas water heater which starts out: "It's been fun being at your 'Soap Suds Social' today. You didn't see me but every time you discussed washing your hair, scrubbing your face or rinsing your clothes you were depending on me to bring you just the right amount of water and at the right temperature, too."

And that takes gas—and gas-fired water heaters—right into a teenage girl's consciousness of her good appearance! There's hardly a field in which she—a future homemaker—is more receptive to suggestion.

OBITUARY

W. R. Briggs

southwest Texas division manager of United Gas Corp. died suddenly at his home in New Braunfels, Texas, January 12. He was 60 years old. Mr. Briggs' 37-year service in the Texas gas industry brought him widespread recognition as one of the industry's pioneers.

Born and educated in South Carolina, Mr. Briggs came to Texas in 1914 as a helper with the old Beaumont Gas Light Company. After a series of promotions, he was appointed sales manager in Beaumont, then manager in Kenedy. In 1935 he transferred to New Braunfels, when he became district manager for United Gas. He was promoted to division superintendent in 1939 and division manager in 1945. At the time of his death, he was in charge of distribution operations for a large area of southwestern Texas.

Luther M. Pease

superintendent of gas operations for the New Bedford Gas and Edison Light Co., New Bedford, Mass., died on January 14 at the age of 66. He was a member of American Gas Association.

Edward McTaggart

retired oil producer, died at the age of 80 on January 26 in Marietta, Ohio.

He had been a director and treasurer of Selby Oil and Gas Co., Tulsa. He was also associated with the George C. Best Oil and Gas Co., the Link Oil and Gas Co., and the Aiken Oil and Gas Co., all in the Oklahoma fields.

After retiring in 1917, Mr. McTaggart lived in Marietta.

LP-gas

(Continued from page 23)

The petrochemical industry grew very rapidly during 1951, especially in the Gulf Coast area, where it is estimated that plant projects announced, started or completed, involved the expenditure of more than $250 million. Basic raw materials for these plants include LP-gas, oil and natural gas. These new plants insure an increasing demand for LP-gas by the chemical industry.

The more important chemicals manufactured from LP-gas hydrocarbons include alcohols, organic acids, acetates, anti-oxidants, detergents, plastics, resins, glycols and special solvents. Cracking or dehydrogenation is usually employed to form ethylene and/or propylene, following which synthesis can proceed along numerous routes to the above mentioned commercial grades of petrochemicals.

Standardization

(Continued from page 11)

inspectors at factories where A.G.A. approved appliances are manufactured—all these are evidences of the industry's determination to keep its own house in apple-pie order. The result has been constantly improved products and performance, and a continued upgrading of standards in the industry.

In times like these, when the economy of free enterprise is challenged by a persistent drive for more and stricter centralized controls, it is worth remembering that the gas industry has undertaken and successfully carried out this program voluntarily and without compulsion by any outside force. By experience and trained use of the imagination, the men who have taken an active part in the development, operation and maintenance of the gas industry have used standards as a means of smoothing the running of their companies. They have improved and reduced the cost of their product to the benefit of the consuming public, while extending the free national market without which mass production is impossible.

From a standpoint of national interest, the importance of the standards program can scarcely be exaggerated. The gas industry today is the source of one-fifth of the country's total supply of energy. Accordingly, the nation—which can produce little or nothing without applying energy in the process—must make sure that no possible threat endangers full and proper use of this energy.

Much work remains to be done before the industry's vision of a unified, comprehensive system of national standards is realized. But the work that has been done thus far—the standardization program that was begun some 35 years ago—has been a democratic and progressive force for good in the industry. It has demonstrated the soundness of the philosophy that individual initiative and assumption of responsibility at the working level will every time produce outstanding results.

Section tells plans

(Continued from page 28)

niques, case histories, and specialized applications utilizing gas fuel. One of the aims of the committee is to bring to the attention of the gas industry the importance of industrial gas and its application in the manufacture of practically everything.

The new committees on commercial gas have also met and made plans for 1952 activities. Chairman R. S. Chapman of the Food Service Equipment Committee reported several items that were acted upon at the initial meeting. Twelve members of the committee were assigned to write feature articles for specific monthly issues of the new section-sponsored publication *Flame Facts* which is being distributed to equipment dealers and their salesmen either directly or through member gas companies.

It was decided to reactivate the postponed "Proof of Profits" commercial sales campaign as early in 1952 as possible. The ground work of this campaign has already been laid and, with a few changes to bring it up-to-date, can be launched shortly.

An earnest effort will be made to encourage more gas equipment manufacturers to exhibit in the show of the American Dietetic Association. Here, the prospective purchasers of new equipment, who have the authority to designate what they want for their kitchens, can be reached more directly. Efforts are to be made to arrange a combined gas exhibit to bring the prestige of the gas industry to the dietitians in a forceful manner.

The Chain Contact Program, which has done much to promote the good-will of the gas industry, will be continued. It was suggested that it be expanded to include architects and kitchen designers.

The action taken by the Commercial Processing Committee, under the chairmanship of John Black, will include an investigation of volume water heating, commercial incineration and commercial air-conditioning. The objectives of these investigations will be to promote these activities for increased profitable load. Subcommittees will carry on the detailed work of these projects.

Coal carbonization findings are reported

a PAR activity

G.T. Bulletin No. 11, "Expansion Behavior of Coal During Carbonization," by O. P. Brysch and W. E. Ball is now available. This bulletin presents the state of the art of coal carbonization through the means of a critical literature survey, which includes some 700 references. The literature survey was supplemented by visits to large coke plants and observation of current coke oven practices. This bulletin is an excellent summary and will be an important reference in its field.

This bulletin reports the work under Project PB-1, "Coal Carbonization," sponsored by the A.G.A. Gas Production Research Committee under the auspices of the PAR Plan. Copies are available at A.G.A. Headquarters and the Institute of Gas Technology.

Odorization

(Continued from page 19)

because most gas companies installing odorizing equipment buy some one of the ready made units.

The various types of odorizing equipment have been well presented in a number of papers, including the A.G.A. paper on odorizing practices. There are two general types, direct liquid injection equipment and absorptional equipment. The difficulties operators have encountered deserve study, largely because one of the major types of equipment may be used at a location where the other type is more suitable, or odorant material intended for use in one type of equipment is used in the other. It is in these complications that the greatest amount of malfunction seems to occur, and any of these occurrences will undoubtedly produce an independent variable.

The "islands of agreement" among operators are not hard to find. They will agree first of all, that an absorption-wick odorizer is probably the better apparatus for odorizing small quantities of gas, or gas flowing at relatively low rates. For the extremely small quantities, say main line consumers, there will be the direct contact type, and for the larger quantities, the by-pass type. That is where the variables start to appear.

Some operators are so fortunate as to be in a geographical location having reasonably narrow ambient temperature limits, in which case the absorption type apparatus will be reported to be eminently successful. Some other operators, however, in an area where the daily temperature variation is extreme, will report very poor performance with absorption equipment, and proceed at once to install temperature control devices, so as to keep the gas and the odorant at a slightly higher temperature than the ambient. Another operator may have started odorizing with absorption equipment using narrow boiling point range odorant, then in order to obtain some odorant characteristic not present in the original material, he switches to an extremely wide range boiling point material. The original operation was satisfactory, but he may now report that absorption equipment is unsatisfactory. The real reason may very well be that he is using the wrong material for the equipment he has installed.

In some natural gas company systems, the wick type absorption apparatus, either direct stream or by-pass, has been found unsatisfactory due to the presence in the gas stream of appreciable quantities of pipeline dust. This dirt has a tendency to deposit on the surface of the wick, impair absorption, and with certain odorants, actually produce a chemical change affecting the odorant characteristics. Utilities planning wick-type odorant equipment where there is a chance of dust storms in the gas supply line, should consider the advisability of installing good dust filters in the odorizer by-pass line.

At large volume odorization stations, the direct injection type of equipment seems to be most popular. There are, of course, many variations of this type, such as very expensive diaphragm operated proportioning pumps which can be made to operate at a standard odorant rate for an almost infinite range of volume. They are so expensive that they are not likely to be chosen for use at small flow stations. Other variations range from one based on the principle of the "chicken-drinker," to others using a by-pass gas meter to drive a small Archimedes spiral pump. The manufacturers of these types of equipment, other than the proportioning pump, usually claim satisfactory operation with flow ratios of 25 to 1. But those who are familiar with orifice meter work will quickly figure that the claimed ratio may be as much as five times too great for any one main line orifice size. Many operators are obtaining volume ranges even greater than 25 to 1, but they accomplish this by using a cramped valve in the main line to produce the differential necessary to operate the odorizer. They then change the adjustment on this valve from week to week, or month to month, depending upon the volume of gas passing through the station. It is really much easier to do it this way, rather than suffer with extremely irregular odorant rate.

Most operators agree that neither ambient temperature nor boiling point range seem to have any adverse effect on the satisfactory performance of any of the injection type units. There have been complaints of unsatisfactory operation of injection type units when the odorant material, because of an obstruction in one of the odorant gas flow lines, could siphon from the odorant storage tank into the main line. It takes very little imagination to figure out the customer reaction when you suddenly dump perhaps as much as three hundred gallons of concentrated odorant material into a small section of the distribution system. A little thought at the time of installing the supply tank piping will remove the possibility of this sort of accident. Some manufacturers of injection equipment now have their appartus so constructed as to make it virtually impossible for siphoning to occur.

How much does it cost to install an odorizing station and what will be its operating cost per million cubic feet of gas odorized? Labor rates, material costs, land rentals, operating costs and travelling expenses for the maintenance crews, are only some of the independent factors affecting the cost of the station. Any one of you can make a good estimate of the cost of construction of a particular type and size odorizing station by simply employing the regular method used to arrive at the installation costs of regulating and metering stations. The only word of caution is not to use costs from some other station, built under some other conditions, in some other part of the country, as even preliminary budget figures for your estimated cost.

The problem of odorizing natural gas may sound incapable of satisfactory solution. But, as "Boss Kettering" has said, "The application of a little imagineering will crack the problem wide open."

Industrial relations

(Continued from page 16)

● **Federal grants for industrial health research**—The Federal Public Health Service has approved grants totaling nearly $800,000 for twenty-four new research projects relating to the mental health of industrial workers. One study to be made by Dr. Reuben Hill, University of North Carolina, will deal with family and personal disruptions affecting labor turnover, productivity and absenteeism. Other studies will be concerned with community factors involving the mental health of workers in a defense "boom" town and the effect of repetitive work and lack of individual responsibility on emotional health and industrial effectiveness. Several earlier projects in related subjects, still under way, received continuing grants.

● **Growth of group life insurance**—Group life insurance in the United States continues its uptrend. A recent study by the Institute of Life Insurance shows a growth in the value of such insurance in the last twelve months to more than $50 billion, or twelve times above the level of twenty-five years ago. According to the institute, the group insurance policies now cover about 28,500,000 individuals and represent nearly 70,000 master policies, as against 24,000,000 persons covered by 60,000 policies twelve months ago. The institute reports that in two out of three situations group life insurance is on a contributory basis, with the employer paying the major portion of the premium.

● **Making foremen safety conscious**—A means of developing foremen's safety consciousness, recently devised by the Koppers Company, is a special merit-rating form used by plant superintendents to grade the supervisory force on safety vigilance. Besides serving as a guide to management in making decisions on promotions, the form will be a reminder to foremen that top management is constantly aware of the importance of accident prevention. The National Foremen's Institute believes that where such ratings are made and discussed every month with the supervisors concerned, a company's safety record is bound to improve.

● **Trends in state disability insurance**—Thirty-four bills to establish cash sickness or disability compensation programs were introduced in 1951 in 14 of the state legislatures and in Alaska. The most common pattern (followed in 15 bills) calls for state monopoly, as in Rhode Island. Optional carrier provisions, as in New Jersey and California, are called for in 10 bills. Only nine bills imitate the New York all-private system.

An increasing trend is noted toward coverage under private plans in both California and New Jersey. Estimates of the number of workers covered under the state plan in California show a decrease of almost 28 percent, dropping from almost two million in 1947 to 1.4 million in 1949. Meanwhile, coverage under the voluntary plan increased from 554,500 to 1,093,100. In New Jersey, the number of workers covered by private plans has increased each quarter until, at the close of 1950, approximately 70 percent of the employed covered workers were under private plans in lieu of the state plan.

● **Injury frequency rate rising**—Industrial accidents are again mounting, and the Bureau of Labor Statistics finds that a trend similar to the one between 1941 and 1943 has begun. According to the National Safety Council, 1950's accidents cost management an estimated $2,500,000,000 of which $1,200,000,000 were in visible costs and the rest in indirect costs. After a steady three-year drop, the injury frequency rate began to rise in 1950, and by the end of the first quarter of 1951 the average rate was 16 percent above the level of a year earlier. The bureau attributes the rising accident frequency rate to the entrance of new and inexperienced workers into industry, increases in scheduled work hours, and transfers of workers to unfamiliar work. Meantime, new drives to prevent plant accidents are under way. In this connection a five-year study of safety programs released by the Bureau of Mines in March, 1951, reveals an enormous reduction in the accident rate in companies where top officials, of both management and union, were actively interested in safety.

● **Supervisors' pay**—The Associated Industries of Cleveland recently polled a small group of companies in the area on the differential between the foreman's pay and that of the highest paid worker under him. Some of the results: Company A, 15 percent; Company B, 12 percent; Company C, 5 to 25 percent with the average around 15 percent; Company D, 10 to 25 percent; Company E, 20 to 25 percent.

Of 60 companies surveyed by the Commerce and Industry Association of New York, 31 had definite policies providing extra compensation for supervisors when their departments are scheduled to work overtime. Fourteen of these pay straight time, time and a half, or double time. Nine pay extra compensation on a tapering-off schedule according to salary level, number of overtime hours, or both.

Fuel for industry

(Continued from page 17)

We have maintained our gas plant so we can produce 25 million cubic feet of oil gas per day when necessary. We at all times keep in stock something over 2 million gallons of oil for this purpose. In addition we have constructed four propane plants and carry in stock 2.2 million gallons of propane. Last year our demand totaled 135 million cubic feet per day. Our peak day send-out was 153 million cubic feet so it was necessary to produce 18 million cubic feet of gas in addition to what we received from the pipeline to take care of our entire domestic load plus our firm industrial load. In Minneapolis we have an average of ten days per year in which the mean temperature falls below zero. Our firm industrial business produces a load factor of 50 percent. To produce the gas necessary to carry the firm industrial load on peak days adds one half cent per thousand to the cost of our industrial gas on a year's basis. Our house heat load has a load factor of 35 percent with peak shaving. To produce the additional gas needed to take care of our house heat load on peak days adds 1.2 cents per thousand to the cost of our house heat gas on a year's basis.

We take on as firm industrial load all processing loads that our industrial department can sell. We do not take industrial heating loads as firm loads. We take up to five H.P. steam boilers as firm loads. We do not sell house heat gas until we have it in hand, that is, the pipeline not only has signed a contract to furnish us a certain amount, but we do not sell it until the facilities necessary to deliver the gas have been completed. This winter we will serve over one hundred thousand house heat customers. We still have seventeen thousand signed up, waiting to be served. Increasing gas sales requires capital expenditures. Only $2 million was spent for construction during the first five years of mixed gas operation but over $10 million has been spent since 1940. Increasing gas sales requires additional manpower which increased from some eight hundred in 1940 to eleven hundred in 1950. Payrolls increased from $1.5 million in 1940 to $4.4 million in 1950, while average annual wages doubled from $1,800 in 1940 to $3,600 in 1950.

Our gas sales increased from four million cubic feet in 1940 to 30 million in 1950. Our operating revenue increased from $5.6 million in 1940 to $14.8 million in 1950, while the average selling price of gas decreased from 11.66 cents per therm to 4.94 cents per therm and our net return from operation before fixed charges increased from $1.4 million to $2.1 million in 1950.

That's the story. You can do it better and cheaper with gas, and it is a dependable source of fuel for industry.

Accountants map program—

(Continued from page 27)

tomer relations. Short-range projects include Do You Give "One Spot—One Shot" Service? and Do You Tell Your Story to the Public?" The committee will undertake other projects including: Methods of Customer Sampling, Meeting the Customers' Desires, Proper Tools for Customer Relations Employees, Ninety-nine Ways to Improve Customer Relations, and Exploring the Current Problems. These, together with participation in the tri-committee project How Many Customer Files? will be contributions at the April 1952 joint conference.

The long-term project of Customer Relations Training by manual and films for the purpose of establishing better customer relations is going into the third year. The group is now writing five of the seven sections of the manual, three of which have been reviewed by the committee. After this review and acceptance as to general content, they will be reviewed by the visual aids department of the University of Cincinnati and by Wilding Studios for filming recommendations. Another project includes an effort to present rate information on bills in a friendly and more understandable manner.

D. E. Barr, chairman of the Customer Relations Committee entered the utility field in 1925 when he joined The Logan Gas Co. as a clerk. In 1927 he transferred to Mansfield as a bookkeeper with Ohio Fuel Gas Co., and two years later went to Athens as a bookkeeper. He became Athens district office manager in 1931. Today he is assistant district manager in Toledo, with responsibilities for public, customer and employee relations.

Accounting Employee Relations Committee—Chairman, Neander W. Wade, Memphis Light, Gas and Water Division; vice-chairman, J. E. Glines, Michigan Consolidated Gas Co., Detroit. This committee has started a continuing long-range project of Accounting Employee Training and Development. It has been endeavoring to secure a film on Accounting Employee Training for the 1952 spring conference. Other subjects under consideration are The Economics of Safety, and Training of Future Supervisors.

Neander W. Wade, chairman of the Accounting Employee Relations Committee is secretary, The Board of Light, Gas & Water Commissioners, City of Memphis, and has completed 30 years of service with utilities in that city. He began as auditor for the Water Division soon after his return from World War I, and in 1931 was promoted to his present position. He is in charge of all accounting and finance of the Memphis Light, Gas & Water Division. Interested in all phases of electric, gas and water utilities, he is both a member of AIEE and of A. G. A. and has served on many of the latter's committees including Customer Accounting, Natural Gas, and Accounting Employee Relations.

General Activities Group

The General Activities Group consists of five standing committees under the general supervision of Coordinator W. D. Sweetman, The Peoples Gas Light & Coke Co., Chicago. The General Activities Group committees and their programs follow.

A graduate of Loyola University with post graduate work at Illinois Institute of Technology, W. D. Sweetman, coordinator of the General Activities Group was first employed in the mining business and then started his utility carer with The Peoples Gas Light & Coke Co. as a collector. A year later he transferred to the accounts division and has served there in various capacities in the general accounting, budget, statistical and methods department. His present post is superintendent of the general accounting department.

General Accounting Committee—Under the chairmanship of F. H. Crissman, Columbia Gas Systems, Inc., New York, N. Y., the General Accounting Committee is well along with its work this year. The scope of the committee covers a very broad field of financial and accounting questions, procedures, and material of a general economic nature. The program for this coming year will result in the continuance of five existing subcommittees and the formation of one new subcommittee. The various subcommittees and the status of projects under way are as follows:

The Subcommittee on Accounting Techniques will review the problems of Accounting for Transportation Costs for necessary follow-up; Accounting for Minor Materials, and Accounting for Nonproductive Time.

The Subcommittee on Budgeting and Forecasting will consider such projects as Present Budget Practices and Budget Comparisons and Control.

The Subcommittee on Capitalization of Indirect Costs (name changed from Capitalization of Overheads), will consider Interest During Construction, Pensions Applicable to Construction, and three long-range projects which will carry into 1952-1953 on Income Tax Treatment of Overheads vs. Book Treatment, Taxes During Construction, and Views of Economists Regarding the Capitalization of Interest, etc.

The Subcommittee on Financial Reporting will consider the Survey of 1951 Annual Financial Reports and Internal Reports to Management, consisting of two parts: (a) reports to top level management and (b) reports to lower levels of management, the latter of which will carry over to 1952-1953.

The Subcommittee on Preservation and Destruction of Records will stand by for consultation upon receipt of the Federal Power Commission's comments regarding recommendations made in 1949-1950 to change retention periods of certain records.

A new Subcommittee on Methods and Procedures Work will study types of departmental organization, line of authority, the scope of activities and freedom of action. Upon completion of this first phase, the project will be continued to determine the techniques used in analyzing the effectiveness of methods and procedures and in developing new methods and procedures or improving the old.

F. H. Crissman, chairman, General Accounting Committee, began his utility career as chief clerk of Indiana General Service Company. In 1930 he joined Manufacturers Light & Heat Co. and in the latter part of 1938 was transferred to the executive offices of the parent company, Columbus Gas System, in New York. He did much of the integration work before the SEC, resulting in Columbia becoming exclusively a natural gas utility. In 1944 he was made assistant treasurer of the System's Service company and the following year became assistant treasurer of the Columbia Gas System, Inc., the parent company. He was made treasurer in May, 1951.

Internal Auditing Committee

The Internal Auditing Committee, under its chairman, E. R. Mellon, Washington (D. C.) Gas Light Co., will continue its development of audit procedures covering various activities. These procedures will become part of the Audit Manual to be developed, as proposed last year by the Audit Manual Format Committee.

Currently, procedures are being formulated to cover Materials and Supplies, Property Records, Payrolls, and Cash and Securities. The committee will continue the publication and distribution of auditing case studies. The enlargement of the subcommittee working on these case histories should permit an increase in the number of cases published. Distribution to a greater number of interested companies will be effected.

Topics to be discussed at the April 1952 joint conference will include such subjects as "Scientific Sampling Tech-

niques," "The Auditor and Human Relations," "Audit Reports," and "Fraud and Embezzlements."

E. R. Mellon, chairman, Internal Auditing Committee, studied electrical engineering at the University of Colorado and received his B.C.S. degree from Benjamin Franklin University, Washington, D. C. He became associated with the Washington Gas Light Co. in 1937 serving successively as clerk, accounting supervisor in the general accounting section, internal auditor and assistant comptroller. He is a member of the Institute of Internal Auditors and past president of the Washington chapter.

Taxation Accounting Committee

Chairman of the Taxation Accounting Committee is Burton P. Smith, Jr., Texas Eastern Transmission Corp., Shreveport. The next meeting of the Taxation Accounting Committee will be held at Houston, Texas, February 11-13. The committee program will cover: the utility impact of the 1951 revenue act; tax amortization of emergency facilities; fringe benefits; depletion; gas storage; rate increases; change in meter reading; tax settlements, etc. There has been formed an expert panel to answer technical questions where possible. The Tax Committee's long-range projects include Review of State and Local Taxes. A project is in process of developing by states an analysis of all taxes on utilities.

The short-range project will cover the summarization of federal taxes other than income and excess profits taxes. The standing subcommittee continues to develop ideas and arguments that may be presented to congressional bodies dealing with federal tax legislation.

Burton P. Smith, Jr., chairman of the Taxation Account Committe, attended the University of Missouri where he received a B.S. in Business Administration in 1931. He began his industrial career in 1931 with Panhandle Eastern Pipe Line Co. as an accountant. He progressed steadily, through several different companies, holding positions such as assistant purchasing agent for Swift & Co. and treasurer of the Hogan Milling Company. He came back to Panhandle Eastern in 1937 as assistant to the comptroller. Mr. Smith returned from World War II naval service to become treasurer of the Esser Sales Corporation. In 1947, he became auditor for the Colorado Milling & Elevator Company. He left that organization in 1948 to become general auditor for Texas Eastern Transmission Corporation. In this position he is responsible for all taxes (except ad valorem), special reports and analyses, as well as internal audit functions.

Materials and Supplies

The Materials and Supplies Committee is under the chairmanship of R. L. Groves, Oklahoma Natural Gas Co., Tulsa. Its scope is: to study problems involved in purchasing, stores and related matters, including accounting for materials and supplies; to submit findings and recommendations to the coordinator for dissemination to members.

Of particular concern to this committee at this time are procurement problems and the management of inventories under national emergency conditions. It assists the A.G.A. Advisory Committee on materials procurements.

Chairman Groves has been employed by Oklahoma Natural Gas Co. for more than 28 years. During all that time, some part of his work has always had to do with the handling of materials and supplies. Thus, he is well qualified for leadership in his present association activity. Mr. Groves has participated actively in the development of more satisfactory handling of materials and supplies, their storage, packaging and accounting practices. He has engaged in the design of warehouse buildings and the development of improved safety rules for the handling of materials. Presently he is serving as a member of the Tulsa Purchasing Agents Association and the National Purchasing Agents Association.

Property Records Committee

J. F. Preish, Michigan Consolidated Gas Co., Detroit, is chairman of the Property Records Committee, which covers Plant Accounting and Records. Five subcommittees have been appointed:

The Subcommittee on Machine Accounting Methods for Detailed Plant Records will prepare a paper on the use of machine methods in accumulating costs to transfer work in progress to primary accounts.

The Subcommittee on the Assignment of Costs to Primary Plant Accounts and Property Record Accounts through the Use of Standards will summarize questionnaires and prepare a paper for the spring conference on this subject.

The Subcommittee on the Procedure of Transferring Work in Progress to Plant Account prepared a paper and reviewed it at their January meeting.

The Subcommittee on Work Simplification in Plant Cost Accounting. A paper, with exhibits, is being prepared which will indicate what experience has been gained by the reduction or expansion of units for "mass" account property records.

The Subcommittee on Capitalization of Indirect Costs is a joint project with General Accounting Committee. The subject will be presented at the spring conference.

From the above, it can be seen that this committee will be very active. It has already devoted considerable time and effort to present plant accounting methods to the committee as a whole for the spring conference.

J. F. Preish, chairman of the Property Records Committee is a graduate of the University of Michigan with the degree of B.S.M.E. He was employed in 1929 by Detroit City Gas Co., now Michigan Consolidated Gas Co., as a cadet engineer in the construction and design division of the production department. In 1943, he became property accounting engineer in charge of the utility plant records.

IGT offers fifteen fellowships

THE INSTITUTE OF GAS Technology has announced the availability of 15 fellowships for entrance in September 1952. The Institute program, carried on at the master's and doctor's degree levels, offers unique instruction and training for responsible gas industry positions.

The fellowships train men in all phases of the manufactured and natural gas industries. The Master of Gas Technology program requires two full years of study, plus two summers' active employment in the industry for practical experience. The curriculum includes graduate courses in chemistry, physics, mathematics and engineering, manufactured gas, natural gas, analytical procedures, combustion and gas-making reactions, transmission and distribution, utilization, research methods and gas literature.

The second year's study includes geology of natural gas, natural gasoline, design of gas-making equipment, research, business organization, engineering economic studies of the gas industry, public utilities regulations and labor management. The fellowship for a master's degree is worth $4,000, plus earnings at summer employment.

The Doctor of Gas Technology program is available to those fellows who demonstrate marked ability while earning the master's degree. The doctorate requires two additional years of study. Before admission, the student is required to pass an examination on engineering ability and judgment. To secure the doctor's degree, the fellow must complete a research problem, the results of which contribute to basic knowledge in gas technology.

Applicants for fellowships are invited from seniors and graduates in chemistry, chemical engineering, mechanical engineering, physics, petroleum engineering and related fields. An applicant must be an American citizen in good health, under 28 years of age.

Further information as well as application forms can be secured from the local gas company personnel manager, from the university placement director, or from the director, Institute of Gas Technology, Technology Center, Chicago, Illinois.

Corrosion prevention

(Continued from page 31)

In addition to these performance requirements, management expects the corrosion engineer to be both a teacher and a salesman. He needs to be a teacher because, to the best of my knowledge, the profession is not being fed with corrosion engineering graduates from specialized courses at any of our engineering schools. On-the-job training and experience, a sort of apprenticeship or interneship, is the only method, up to now at least, by which the supply of corrosion prevention engineers and technicians can be augmented. This puts a large responsibility upon the relatively few corrosion engineers now practicing. Therefore, management expects the corrosion engineer to be responsible for training the personnel of his department.

The task of corrosion prevention is so large that its successful conclusion can only be accomplished by enlisting the assistance and help of the entire operating personnel of the company. Management expects the corrosion engineer to sell his fellow employees on the importance to the company and to the employee as an individual, of a successful corrosion prevention program. Management knows that some of the operating practices of long standing in the industry are contributory factors in causing corrosion. But if the corrosion engineer, for example, after watching one of the operating department's veteran employees do a neat and workmanship job of repair, tells him that what he has done is all wrong and never to do it that way again, he will almost surely have lost the future cooperation of that employee. But if instead, he says, for example, "I can show you a little trick to use whenever you have that kind of a job, that may save you a lot of trouble with corrosion later on," he will have aroused the interest of the veteran employee, and added one more convert to the ranks of those all too few who are conscious of the benefits to be gained by corrosion prevention. Therefore, management expects the corrosion engineer to be a salesman of the service he has to offer.

Management has no desire to parallel its existing vertical operating departments with still another operating department to handle the corrosion prevention program. When corrosion prevention programs fail, or at best drag their feet so heavily as to be almost the same as a failure, it has been because they tried to function as a separate operating department. Therefore, management expects the corrosion engineer to operate from a simple horizontal staff department. The corrosion prevention program is so large that the only hope for its successful conclusion is to enlist the entire operating staff of the company, all of whom are concerned with this vast underground network of pipelines, in the prevention and mitigation of corrosion.

Every day, each of the regular maintenance and operating crews of a gas company has several openings exposing parts of the underground structure. Each of these openings may offer an opportunity for the mitigation of corrosion. If the responsibility for corrosion prevention rests with a separate operating department, then nothing can be done at any of these openings unless a corrosion operating crew is present. Or, if the regular maintenance crew report that in the course of their opening a line they found evidence of serious corrosion, then a corrosion operating crew must come to that location at some later day to proceed with the corrosion mitigation work. Because it would require almost as many corrosion crews, with the necessary automotive and other equipment to implement them as the total number of regular production, transmission and distribution crews, such a theoretical state never exists when corrosion mitigation is an operating department. Instead, only the largest of the maintenance operations ever receive any mitigation control.

With the horizontal organization, a corrosion technician, as a staff man of the corrosion department, can be the teacher or instructor for a number of regular operating department maintenance crews. As a result of his work with them, they will know what to do under ordinary conditions, and can call on him for help and instruction when they encounter any unusual condition. The horizontal or staff organization of corrosion prevention will make every opening on the lines a step in the mitigation or prevention of corrosion.

Management expects that the top level of the corrosion portion of its gas engineering staff will consist of two lines, one devoted to the mitigation of corrosion on existing structures, the other, to the prevention of corrosion on new structures being added to the company's property. In the corrosion mitigation line, the second level of staff may have as many as three sections when the operations of the company involve the three departments, production, transmission and distribution. The third and lowest level in this line of the organizational plan will be the field technicians scattered where necessary throughout the geographical and operating departments of the company.

The line of staff responsible for the prevention of corrosion on new structures may be set up to have only two levels. If any portion of the corrosion engineering staff is to be permitted to have the appearance of an operating organization, it will be the lowest level in this line. It has been found by experience that the most satisfactory way to insure quality and performance in corrosion prevention work on new construction, for both large and small jobs, is for the corrosion department to furnish the specialized equipment and a man who can act as a foreman supervising the installation of the corrosion prevention

Corrosion engineers report on cathodic protection

After several years of work, the National Association of Corrosion Engineers has published the report of its Correlating Committee on Cathodic Protection. The Committee was composed of representatives of ten national trade associations, including A.G.A.

According to the report, corrosion of buried plant and its contingent losses cost American industry about a billion dollars a year. The report is intended to call the attention of industry to the action it can take to lessen or prevent such losses. It is divided into four bulletins: Management Information on Cathodic Protection of Buried Metallic Structures Against Corrosion; Cathodic Protection Notification Procedure; Cathodic Protection Technical Practices; and Joint Cathodic Protection systems.

A.G.A. was represented on the Correlating Committee by Guy Corfield, research engineer Southern California Gas Co., Los Angeles, and F. J. McElhatton, superintendent of communications, Panhandle Eastern Pipe Line Co., Kansas City, Missouri.

materials and equipment by personnel of the operating department involved. These "foremen" are not ordinarily corrosion engineers, but are rather the best of the men from the technician group of the corrosion organization. Sometimes, because of the seasonal nature of pipeline construction work, these men can be transferred from other areas for the period of the construction project. Management expects the corrosion engineer to maintain such control over this group as to prevent any possibility of their becoming simply construction inspectors.

Actually, management will admit to a selfish reason for this expected performance by the corrosion engineer, for just as management expects performance by the corrosion engineer, so does management have to render an accounting of its stewardship to the company directors and stockholders. So because they can visualize multiple benefits from the program, management expects the corrosion engineer to develop ways and means of economically retarding the corrosion of its eight billion dollars of investment in plant structure, while at the same time providing management with assurance that its material purchases are proper and that its construction is such as to prevent, as much as possible, corrosion of the new units added to its plant structure, all of this to be accomplished with the minimum of additional people. The opportunity for achievement is almost unlimited!

Proof of Profits

(Continued from page 22)

pick up the old equipment in order to assure that it does not get back into use. A very good place for it is in the scrap needed for steel for the national defense program.

Another stimulant is free installation during the period of the campaign, or the gas company may offer to pay a set amount toward the installation cost for each appliance sold during the campaign.

A deferred payment plan may induce a customer to buy.

Even though a dealer may be quite capable of handling his own financing, he would accept a gas company finance plan. Where a gas company has no finance plan, one may be set up for the period of the campaign; or it may be possible to arrange with a local bank to offer equipment dealers attractive financing plans.

The Proof of Profits theme will be used in all A. G. A. commercial national advertising beginning in March. Those of the manufacturers will have it during April and May. Dealer salesmen will be told about the campaign in the new publication, *Flame Facts*. Manufacturers' ads will carry some such statement, as, "Ask your gas company for Proof of Profits through the use of modern gas equipment." It is suggested that this theme be used in all advertising, display, and promotion material that can be viewed by the gas company's commercial customers.

Reprints of national advertising will be available for gas companies to distribute to their commercial customers. Gas companies that advertise in the publications of restaurant or hotel associations, or other groups in the volume feeding business, should of course carry the Proof of Profits theme in ads during the period of the campaign.

The National Restaurant Association Exposition will be held in Chicago next spring and the Proof of Profits theme will be carried on in the large A. G. A.-manufacturer exhibit at this show.

Local and regional trade shows also offer an excellent opportunity for gas companies to promote the campaign by taking space in these shows where they can carry out the Proof of Profits Campaign theme.

At Association meetings during the trade shows the A. G. A. film, "Where Food Is Finest," can be useful for telling the gas story.

A strong promotional program for the customers would include presentation of "Mr. Flameless and Mrs. Flame," or the other A. G. A. stage presentation, "What So Proudly We Hail," before the restaurant association meetings or specially invited groups of commercial customers.

An effective commercial gas sales campaign is going to require much effort, thought and more than normal expense for promoting commercial cooking. The amount of money that is available will determine how much of the Proof of Profits Campaign suggestions each company will be able to use.

A long term program for commercial gas sales activities around the year will be offered next June. This will recommend periods of possibly six weeks, or two months be devoted to specialized commercial gas equipment selling and sales promotion in a campaign style. These periods will be set up possibly for deep fat fryers, counter equipment bake ovens, ranges and broilers.

CONVENTION CALENDAR

1952

MARCH

Week of March 10 •National Association of Corrosion Engineers, Galveston, Texas.

27-28 •Oklahoma Utilities Association, Biltmore Hotel, Oklahoma City, Okla.

27-28 •New England Gas Association, annual convention, Hotel Statler, Boston, Mass.

31-April 2 •Mid-West Gas Association, annual meeting, Hotel Raddison, Minneapolis, Minn.

APRIL

3-5 •Florida-Georgia Gas Association, annual meeting, Soreno Hotel, St. Petersburg, Fla.

4 •The Maryland Utilities Association, annual meeting, Lord Baltimore Hotel, Baltimore, Md.

7-8 •Eastern Natural Gas Regional Sales Conference, Hotel William Penn, Pittsburgh, Pa.

7-9 •National Conference of Electric and Gas Utility Accountants, Hotel Commodore, New York, N. Y.

7-10 •A. G. A. Distribution, Motor Vehicles and Corrosion Conference, Benjamin Franklin Hotel, Philadelphia, Pa.

8-10 •Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla.

16-18 •A. G. A. Sales Conference on Industrial & Commercial Gas, Netherland Plaza Hotel, Cincinnati, Ohio.

21-23 •A. G. A. Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.

24-25 •Indiana Gas Association, annual meeting, French Lick Springs Hotel, French Lick, Ind.

28-30 •Southern Gas Association, annual meeting, Galveston, Texas.

MAY

5-9 •A. G. A. Commercial Gas School, Chicago, Ill.

8-9 •Public Utilities Advertising Association, Hotel Radisson, Minneapolis, Minn.

12-13 •A. G. A. Natural Gas Department Spring Meeting, Biltmore Hotel, Los Angeles, Calif.

13-15 •Pennsylvania Gas Association, Wernersville, Pa.

21-23 •GAMA annual meeting, The Broadmoor, Colorado Springs, Colo.

26-28 •A. G. A. Production & Chemical Conference, Hotel New Yorker, New York, N. Y.

Personnel service

SERVICES OFFERED

Analytical and economy minded man now employed in **junior executive** capacity desires **administrative** or right-hand man position. Background: production, geology, economic analyses. Can prove outstanding achievement and organizing ability. Salary secondary to advancement opportunity. Married. (38) **1690.**

Managerial, Operation or **Sales**—Eighteen years' of administrative, sales supervision and engineering experience for gas utilities. Good practical knowledge of most every phase of utility work. B. A. Degree (Business-Management). Present position Commercial and Industrial Manager, including house heating for 23,000 meter property. Available thirty days' notice to present employer. Married. (41) **1691.**

Heating Representative, sixteen years' experience with gas company would like position as **Gas Sales Supervisor** or **Factory Representative** for gas heating equipment. Middle west or south preferred. Further information on request. **1692.**

Technical Assistant—Twenty years' experience in gas and related industry—analysis, distribution, research, safety. Would make some busy executive a good technical assistant. South or Southeast location preferred. College training, married, family. (42) **1693.**

District Foreman—has supervised operations in distribution district serving 52,000 domestic meters including construction and maintenance of mains and operation of measuring stations. Previous experience—ten years' as pipe line welder. Wishes another location preferably in Southwest for health reasons. **1695.**

POSITIONS OPEN

Sales Executive—Outstanding opportunity to direct an expanding and developing sales organization in an established Domestic Gas Heating Line. Nationally known, large and reputable manufacturing organization with diversified lines. Located in the Midwest. Must have successful experience in sales management of gas heating equipment. Salary commensurate with qualifications. Replies held confidential. Write qualifications in detail. **0632.**

Local Manager for gas property in a growing industrial community of 12,000 population, located in Pennsylvania. Position is permanent and provides attractive future with well known operator. Applicant should be under fifty, of good personality and experienced in load building and sale of equipment. Knowledge of propane-air operation desirable. **0633.**

Superintendent to act as inspector during construction of a high-pressure pipe line and to assume responsibilities of superintendent of operation and maintenance of line when completed. Experience necessary in construction, maintenance, metering, and odorizing. Reply in detail, stating age, education, references, and salary requirements. **0634.**

Salesman by southern manufacturer gas appliances to travel southeastern states. Experience with gas utilities desirable but not required. State experience and expected compensation. **0635.**

Manufacturer of gas and oil conversion burners, warm air furnaces, and boilers, starting an expansion program and in need of additional **District Sales Representatives.** At present several desirable and profitable districts available. Salary, expense allowance and a very liberal commission on all sales in the assigned territories. If you are between the ages of 30 and 45, with experience in the sale and service of gas and oil fired domestic heating equipment, write, giving full details concerning experience, education, character and business references, as well as preference of territory. **0636.**

Sales Manager or **Assistant Sales Manager** for one of the oldest, midwest heating manufacturers currently building oil and gas burners, furnaces, water heaters and boilers and planning an expansion program for greater sales distribution. Applicants must have held positions of like capacity with ability to direct sales and distributions of domestic heating equipment. Salary commensurate to position and individual ability plus bonus participation of company earnings. State qualifications, experience and present employment. All applications strictly confidential and our employees know of this advertisement. **0637.**

Exhibit Manager—Opportunity for man experienced in running home shows and housing exhibits. Utility company background of kitchen planning or appliance sales desirable. Prefer degree in architecture and knowledge of publicity and advertising. Character and personality must be the best. Starting salary $6,000 to $7,500 depending on experience. Please furnish complete summary of education, experience, salaries, interests, ambitions, and general background. **0638.**

Gas Utilization Engineer—A Canadian natural gas company requires a utilization engineer experienced in all phases of service work. The company serves 75,000 meters in a number of municipalities which are grouped in four districts. Applicants must be capable of directing district superintendents in service work, installations inspections, training programs, etc., as well as direction of a small appliance testing laboratory and preparing installations codes, etc. Applicants should state age, qualifications, experience, references and salary expected. All applications will be treated as confidential. **0639.**

Gas Engineer required as superintendent of gas operations in large synthesis gas plant which uses coke in mechanical generator sets. **0640.**

Product Engineer—Midwest domestic heating equipment manufacturer has attractive opening for engineer with experience record on design and development of gas or oil fired furnaces and boilers. Include in first letter complete qualifications, education, age, experience, present compensation and salary expected. Replies to this advertisement will be kept confidential. Our employees know of this ad. **0641.**

Gas Sales Manager—Aggressive administrator and salesman, able to recruit sales force and lead and drive them to real results. Real opportunity for able man in northeastern manufactured gas utility. Salary, commission, and override. Record in similar assignment necessary. Only those submitting full details in first letter considered. **0642.**

Gas Appliance Salesman—For northeastern manufactured gas utility. Fine earnings opportunity for young hard-hitting salesman. Other appliance sales experience or general sales experience, which includes canvassing, will be considered. Salary and commission. Really reasonable living costs at assigned location. Full details in first letter. **0643.**

PAR programs

(Continued from page 12)

tic, industrial and commercial gas utilization in 1952. Gas production research continues to devote its greatest effort to the problems of peak load supply and interchangeability. Coal gasification and catalyst improvement are also being considered.

In the fields of gas utilization research the main attacks are directed to the problems of gas househeating and water heating, and the improvement of commercial cooking and industrial heat treating equipment.

In each of these fields, research projects of the greatest potential value to the industry have been selected. Two of the eight new projects are on water heating, one on cooking and two on gas production.

Nine projects have been authorized on natural gas production and transmission during 1952. The emphasis in this general technical field is on the problems of pipeline operation. Research on the problems of pipeline design, a humidity control device and orifice metering are being continued. Of special interest is a new project initiated late in 1951 to determine the accuracy of large orifice metering up to thirty inches.

This vital program is being administered by the A.G.A. Committee on Promotion, Advertising and Research, under the chairmanship of Norman B. Bertolette, president, The Hartford (Conn.) Gas Company. Vice-chairman of the committee is James F. Oates, Jr., chairman, The Peoples Gas Light and Coke Co., Chicago.

Irving K. Peck, vice-president, The Manufacturers Light & Heat Co., Pittsburgh, is chairman of the A.G.A. General Promotional Planning Committee, which supervises all promotional activities conducted under the PAR program. The General Research Planning Committee, under the chairmanship of Dorr P. Hartson, vice-president and general manager, Equitable Gas Co., Pittsburgh, directs the research portion of the program.

High Btu patents

(Continued from page 7)

combinations of the basic inventions of these two patents in a single process cycle.

Some 22 gas sets utilizing this process are now in operation or being built in the United States. Two have been installed abroad. Using a good grade of Bunker C type oil at 6 cents per gallon it is estimated that 1000 cu.ft. of 1000 Btu gas can be produced at a net fuel cost of 48 cents. This cost reflects by-product credits of tar and light oil recovery. The savings achieved by industry through the use of these sets it is estimated will total more than $500 thousand annually—more than the annual expenditure under the PAR Plan for Gas Production Research.

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